

# Audubon

JANUARY-FEBRUARY 1959

Magazine

ONE DOLLAR

PUBLISHED BY THE NATIONAL AUDUBON SOCIETY



THE SINGING WOOD-RAIL page 20



**RUSS KINNE** is by profession a free-lance photographer. Avocationally, he is an ardent sportsman with special enthusiasm for skin diving, sailing, skiing, hunting, and fishing. Combining his profession and hobbies allows him to produce a wide variety of outdoor and nature pictures. A native Rhode Islander, Mr. Kinne served in the U. S. Navy as an aerial photographer. Brief spells as a yachting captain and a field worker with the United States Fish and Wildlife Service in Alaska have occupied some of his time since his graduation from Brown University. His pictures are seen in sporting magazines, textbooks and other publications devoted to natural history.

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# Audubon magazine

Volume 61, Number 1, Formerly BIRD-LORE

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*A bimonthly devoted to the conservation of wildlife, plants, soil, and water*

## CONTENTS FOR JANUARY-FEBRUARY 1959

Letters .....	2
Reducing Our Biological Illiteracy .....	8
by C. M. Goethe	
Insecticides and Birds .....	10
by George J. Wallace	
Statement of Policy of the National Audubon Society on the Hunting of Mourning Doves .....	13
Wilderness Animal—the Fisher .....	14
by Helen Hoover	
Texel, Pearl of the North Sea Isles .....	16
by M. J. Tekke	
The Singing Wood-Rail .....	20
by Alexander F. Skutch	
Adventures for Photographers in Olympic National Park .....	22
by Irving Petite	
The Oil Menace .....	28
by Katharine Tottenham	
Nature in the News .....	31
A Whooping Crane in Northwest Missouri .....	32
Attracting Birds .....	36
by A. L. Pickens	
Book Notes .....	44
by Amy Clampitt	
Your Children .....	48
by Shirley Miller	

Cover: Drawing of singing wood-rail by Don Eckelberry.

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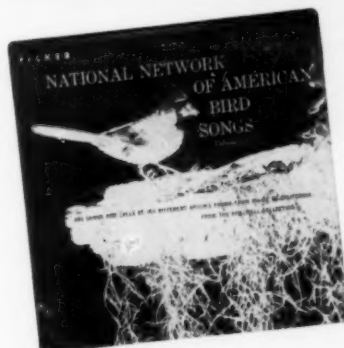
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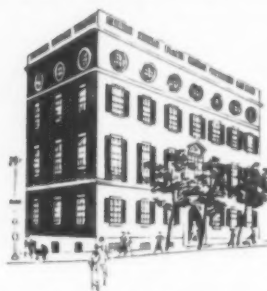
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## Letters

### Horried at Effects of Chemical Sprays

I was both horrified and appalled to read the article in the July-August 1958 issue of *Audubon Magazine* on the American bald eagle. I knew the bird was having difficulties, but never imagined anything like this. It just goes to show the dreadful effect of uncontrolled spraying! I have long thought that the monarch butterfly population was greatly reduced on the east coast by the spraying in Florida, and am sure the butterfly population on Long Island must have been greatly cut down by the spraying of the U.S. Department of Agriculture in 1957 against the gypsy moth. I had a friend trying to find *antiopa* (mourning cloak) caterpillars for me there this summer of 1958 and he couldn't find any where previously there had always been many.

Incidentally, just after reading the article I was watching TV and the Goodrich Rubber Company advertisement came on for their new "eagle" tires. They had pictures of the American eagle flying about, and the slogan went something like this: "swift . . . sure! strong . . . secure!" I thought, "Oh, if you only knew!" You might approach the Goodrich Rubber Company on the problem. They might be willing to promote the needed research for the bird. Stranger things have happened!

ALICE LIGHTNER HOPF

New York City, N. Y.

### House Finches and Birdbaths

Mr. Frank F. Gander expressed my sentiment about the house finch so well in the July-August 1958 issue of *Audubon Magazine* when he wrote: "In my garden they are very welcome." They are, comparatively, newcomers to West Texas where songbirds are practically non-existent. They seem to hold their own with our numerous sparrows.

Mr. Gander did not mention one of their most appealing characteristics: the mated pairs stay together all winter. I see the male solicitous of his mate, presenting her with choice seeds, and calling her to the bath when the coast is clear, just as in the nesting season.

Speaking of birdbaths: they are a problem in our part of the country. We need them most in winter and they invariably freeze and crack. I found myself with three pedestals and no bowls last winter. Noting that most migrating birds prefer ground baths I sank a plastic dishpan in the ground and filled



it with gravel to the desired depth. It held up perfectly, winter and summer, but was far from adequate. How I wish I had a huge plastic saucer! Some smaller ones for my pedestals, too.

MRS. GLEN WILKINSON

Lubbock, Texas

#### Comment

From time to time, advertisers in *Audubon Magazine* have offered birdbath water-heaters for sale. These prevent the birdbath water from freezing and subsequent cracking of birdbaths.

—The Editor

#### Interested in Owls

I am interested in owls—their study and preservation. I would appreciate it if you would print this letter in your column as I am anxious to correspond with others having the same interest.

DANIEL LEE ALBRITTON

Camden, Alabama

#### Views of a New Subscriber

As a new subscriber looking over some back issues of *Audubon Magazine*, I find an article, "Birding on Grand Manan," by Robert D. Lemmon in the May-June 1954 issue. Would it not have been appropriate in this article on birding, appearing in a magazine actually named *Audubon*, to have mentioned Audubon's own visit to Grand Manan in 1830 (the date is also given as 1833)? Audubon is said to have been greatly impressed by the variety of birds on the island, and by his discovery of herring gulls nesting there in trees.

There was also no mention of another well-known birdman, Allan L. Moses (1881-1953), who spent much time on the island observing and collecting specimens for museums in both Canada and the United States. Some of his specimens can be seen in the small but interesting museum located in the basement of the local high school. It was through Allan Moses, as I understand it, that J. S. Rockefeller purchased Kent Island in 1951 to preserve it primarily as a breeding ground of the Bay of Fundy eider ducks. Why not mention, too, that Grand Manan lies right on the Atlantic Flyway, a fact that brings a great number of birds to it besides those that actually breed on or near the island.

I should like to take this opportunity of mentioning another fact that may interest your Society. Several times I have been in New Brunswick's capital, Fredericton, and have visited the legislative buildings on Parliament Square. Each time I have been struck by the way the guide—a pleasant, courteous veteran—mentioned with great pride

that his domain owns one of the only two existing complete folio sets of Audubon's "Birds of America." It is obviously one of the treasures of the province, and is carefully guarded and never shown to visitors. It seems a pity that no one ever sees it. Even so some of your readers may be interested in learning of its existence.

In the January-February 1956 number, the article, "Adventures for Bird-watchers in Nova Scotia," looked familiar. I went back to my notes on a 1956 summer spent largely in Nova Scotia. Sure enough, I had picked up a reprint of this article at the Tourist Information Center in Digby. How thoughtful of someone to make this kind of information available to visitors, as well as the more commercial brochures!

It must be clear by now that I enjoy each copy of *Audubon Magazine*, and wish I had subscribed earlier.

GERTRUDE B. FIERTZ

Manhasset, L.I., New York

#### Black Snake vs. Copperhead

There is a belief among many people in this section that a black snake will kill a copperhead. I am writing to ask if you can advise me if there is any truth in this supposition.

I have often heard that a king snake

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would kill a rattler, but this is a new one on me.

Can a black snake kill a copperhead or any other snakes?

AVY B. SMITH  
Clinton, Connecticut

#### Comment

There is a possibility that a black snake, (especially a large pilot black snake, *Elaphe obsoleta*), would kill and eat a copperhead, and it certainly *could* if it were so inclined; however, black snakes, including the racers or *Coluber* black snakes, are indiscriminate feeders. They are known to eat rats, mice, shrews, the young of rabbits and opossums, lizards, frogs, toads, birds and birds' eggs, insects, and small snakes of many kinds. Although some of the large, non-poisonous snakes may eat venomous ones, it is said that even a king snake, if given a choice, will eat a harmless snake in preference to a poisonous one.

All harmless snakes are immune to the venom of copperheads and rattlesnakes but not to the venom of the coral snake.—The Editor

#### Recommends a Trip to Nova Scotia

I enjoy reading *Audubon Magazine* and am particularly interested in your articles on bird-finding areas.

In 1956 we as a family (two children age 10-12) had our happiest vacation, through an article in *Audubon Magazine* (January-February 1956 issue), by Dr. Harrison F. Lewis, "Adventures for Bird-watchers in Nova Scotia."

I wrote to Dr. Lewis and he found us a lovely place to camp at Little Harbour, Swansburg P.O., Nova Scotia. Dr. Lewis kindly took me birding, introducing me to the many interesting areas in Shelbourne County. The children found plenty of fishing and the townsfolk were certainly *real* people. I heartily recommend this place.

MRS. ROGER C. DERBYSHIRE  
Jenkintown, Pennsylvania



Osprey's nest on windmill photographed by F. V. du Pont

#### Osprey's Nest on Windmill

As a subscriber to the *Audubon Magazine*, which I enjoy, I thought it worth while to forward for your consideration a photograph of an osprey's nest which was built in the spring of 1958 on a windmill adjacent to a small log cabin which I have on the Choptank River on the Eastern Shore of Maryland.

The windmill blades were not in operating position, as it is only used for pumping water when the electricity fails. Although the blades did not rotate, the entire windmill would swing within an arc of a complete circle, depending on the direction of the wind.

This circular movement of the mill did not seem to disturb the ospreys during the construction of the nest, which was a very interesting procedure. Undoubtedly, the building of this nest caused them unusual problems, and frequently the birds would be unable to insert a particular branch or twig they had selected. Under such circumstances, they would drop the twig and go in search of another. I would estimate the number of twigs or branches rejected in this operation exceeded the number that were actually used in the construction of the nest.

F. V. DU PONT  
Washington, D. C.

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#### The "Sweetheart Sparrow"

Maybe some of the people who read *Audubon Magazine* would be interested to hear about the "sweetheart sparrow." The New York Public Library has been

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running an exhibition in the main lobby on Theodore Roosevelt.

Included is a letter which he wrote on October 15, 1915 to Miss Susan Dixon, 541 East 78th Street, New York City. In it he says: "Yes, I know the white-throated sparrow well. I am very fond of him and I always like to call him by the name by which he is sometimes known, that is the sweetheart sparrow."

I had never heard this name before, and I wonder how many of your readers may be familiar with it.

WINTHROP DRURY

New York, N. Y.

#### Comment

We were unfamiliar with the name, "sweetheart sparrow," as applied to the white-throated sparrow, but have records of the following local names for it—Peabody bird, cherrybird (in the Adirondacks), Canada bird, white-throated crown sparrow, white-throat, nightingale (in Manitoba), Canada sparrow, and Peverly bird.—The Editor

#### Liked the September-October Issue

We were particularly interested in the article on the Tannersville Bog "Descent To a Boreal Swamp," published in the September-October 1958 issue.

This issue was especially well done. The following articles also were of high calibre—"The Moose," "Bachman's Warbler," "Ring," and the "Wilson's Snipe." Pettingill's article on the Connecticut warbler was particularly interesting.

It seems to me your magazine has been strengthened with its wider scope in the last few years, with no loss of specific material in life histories of species, precise descriptions of areas, etc.

MRS. ISABEL B. WASSON

River Forest, Illinois

#### Apology to Our Readers

We have received several letters which comment that the snake which illustrated Roger Peterson's "Bird's-Eye View," September-October 1958 issue, p. 204, is a coral snake and not a copperhead. We have replied that even though Mr. Peterson's leading anecdote was about a copperhead, his discussion was of snakes in general, therefore we felt justified in using Mr. Peterson's beautiful illustration of a coral snake (he did not send us a drawing of a copperhead). However, we have learned a lesson from our critics: that it is best to label our illustrations for what they are to avoid the conclusion by our readers that we may have used the wrong one. One of the letters that we received, which delighted us especially, said:

"I received your recent issue of *Audubon Magazine*, which featured an article in Roger Peterson's "Bird's-Eye View" . . . describing what the author called a copperhead . . . the illustration really was of a CORAL SNAKE and not a copperhead. I consider myself a young herpetologist."

BRUCE TRENER (Age 10)

Berkeley 7, California

#### Early Copy of Wilson's American Ornithology

Mr. Waldemar H. Fries' delightful account, "The Elephant Hunter," in the September-October 1958 issue of *Audubon Magazine* describing some of his experiences in his search for sets of Audubon's elephant folio copies of "The Birds of America" recalls a wonderful experience I had not long ago, when I unexpectedly ran into the first set of Alexander Wilson's "American Ornithology," 1808-1814, and met one of the country's finest bird painters.

While with my distinguished kinsman, the Right Reverend Albert S. Thomas, retired Episcopal Bishop of South Carolina, I was enroute to visit Pompion Hill Chapel on the eastern branch of the Cooper River above Charleston. To get into the ancient and isolated chapel, we had to go to the adjacent plantation to secure the key. The Bishop did not tell me whose home it was until we entered, and I was introduced to Mr. Edward von Siebold Dingle, one of the country's foremost ornithologists and painters. This is his wife's ancestral home, known for 200 years as "Middleburg," and said to be the oldest frame house in the state outside of Charleston. Here I saw Alexander Wilson's "American Ornithology," which is said to have been at "Middleburg" since the first Simons' acquired it about 150 years ago.

I wish someone would trace the existing sets of Wilson's "American Ornithology." Incidentally, I have the three-

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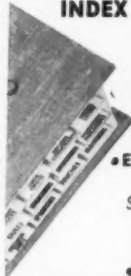
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volume set of Wilson and Bonaparte's, "American Ornithology; or the Natural History of the Birds of the United States. Illustrated with Plates. Engraved and colored from original drawings from Nature, etc. By Alexander Wilson and Charles Lucian Bonaparte. With a Sketch of the Life of Wilson, By George Ord, F.L.S. and A Classification of the Genera and Species of American Birds, by Spencer F. Baird, of the Smithsonian Institution." Philadelphia: Porter & Coates. Can you or any of your readers tell me when Ord and Baird's three-volume work was published? I can find no date in it. CHARLES E. THOMAS  
Greenville, South Carolina

#### Comment

There were several editions of Alexander Wilson's "American Ornithology" published, of which the first one was issued in 1814, another in 1829, and the "popular set" of three volumes, with a contribution by Spencer F. Baird, in 1878.—The Editor

#### Women in Wildlife Management Work

At present I'm a freshman at the University of Minnesota majoring in fish and wildlife management. If you know of any other women in this field

I would appreciate very much any help you could give me in contacting them.

KATHLEEN CORBETT  
1106 West Circle Drive  
Minneapolis 27, Minnesota

#### Robins Intoxicated by Mountain Ash Fruits

Someone has suggested that I describe to you the experience which we had recently with robins and mountain ash berries. The general routine which began about September 1, 1958, was as follows: at approximately 10:30 in the morning, large numbers of robins descended on the tree and literally gorged themselves, after that they flew over the roof of our home (a bungalow) to a birdbath where they had a drink of water. Most of the birds were then unable to fly over the house and back into the tree and many of them, at least 20, flew into our windows. The time which they spent drinking was perhaps only five minutes, so that the effect seemed to be fairly sudden. The more timid ones did not attempt to fly back to the tree but perched on the edge of the birdbath—this with some difficulty.

The berries were not sufficiently ripe to begin to fall from the tree, the tree had never been sprayed, and the birdbath contained only water which is changed regularly.

I do not know of any others who have had this experience with robins but I know that after cutting the berries from my own tree the birds soon moved into a similar tree in a neighbor's garden and began the procedure all over again. After the neighbor had removed the berries from his tree our robin visitors disappeared. I hope that my description of this peculiar behavior of the robins will be of interest to you and perhaps assist you in explaining the cause of their behavior.

A. J. PHILLIPS, Ph.D.  
Toronto, Ontario, Canada

#### Comment

Perhaps some of our readers may have had a similar experience in seeing robins intoxicated by fruit, or can offer a solution to Dr. Phillips' unusual experience. It is known that robins have become seemingly intoxicated from eating apples and ornamental crabapples that have hung for a long time on the trees, and there are numerous records of their intoxication from eating the fruits of the Chinaberry, *Melia azedarach*, a common tree in the southeastern United States. However, we know of no previous published record such as Dr. Phillips has sent us, and we suspect that partaking of water after eating the mountain-ash berries, may have helped to produce the intoxicating effect. Possibly some chemistry of the fruit is involved with which we are not at this time familiar.

It would make an interesting scientific project for study if someone could feed captive robins the mountain-ash berries, and observe their effect with (or without) the drinking of water. Little is known about this phenomenon because it hasn't been studied physiologically as far as we know.—The Editor

#### Admirer of Ring, the Raccoon

I have greatly enjoyed "Ring"—the raccoon story—by George Lookabaugh, published in the September-October 1958 issue of *Audubon Magazine*. It is written

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with such simple charm, and is encouraging to others who struggle with a handicap. Both George and his raccoon, Ring, were wonderful, and I can see why Ring will live forever in his friend's heart. MRS. J. B. ROESSING  
Pittsburgh, Pennsylvania

#### Information Needed About Pileated Woodpeckers

In the last year there have been several letters to *Audubon Magazine* in which reference has been made to pileated woodpeckers feeding on suet.

I have read these with great interest. I have been, for several years, collecting information on this subject for use in an article I am writing designed to present specific data in support of the belief that pileated woodpeckers have not only increased in numbers but also have adapted themselves remarkably well to the advance of "civilization" into their formerly wild territories. Unlike the magnificent ivory-billed, the pileated seems to have made its adjustment to the cutting of the large stands of timber, and now seems to be adjusting to the idea of "feeding stations."

My late husband, Southgate Hoyt, had devoted himself for many years to a study of the pileated (see *Audubon Magazine*, November-December 1941), and in an article published in *Ecology* in April 1957, I presented some of the results of his study and touched briefly upon this question of increasing "tameness" in the species. I would like to ask the readers of *Audubon Magazine* for careful accounts of pileateds visiting feeding stations, with notes as to what they have actually eaten. I must emphasize, however, that the mere appearance of the bird on the trunk of the tree near suet is not positive evidence that the bird eats suet. Dr. Arthur A. Allen reported to me that a female pileated came daily for several weeks to a pear tree near his house at Ithaca, New York. He filled some of her excavations with suet, and though the bird continued to feed within inches of it, he tells me she was never seen to eat the suet, concen-

trating instead on insects, particularly carpenter ants on the trunk and in the holes she dug.

Although I know there must be many instances of pileated woodpeckers eating suet or nut meats at feeding stations, I have only about a dozen well-authenticated stories in the Northeast, although I have appealed for such information on a state-wide radio program, have published my query in several journals, and have written many letters following up leads. Hence I was glad to add to my files the letters in your column and will welcome others.

At our Sapsucker Woods Sanctuary at Cornell University, the pileated visits, irregularly, a suet-basket. So far the bird has not sampled the suet-pecano mixture with which Herbert Stoddard and Ed Komarek have had success in tempting pileateds in Georgia, although other birds at our sanctuary eat it.

MRS. SOUTHGATE HOYT

"Aviana"  
Etna, New York

*Continued on page 34*

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# Reducing Our Biological Illiteracy

By C. M. Goethe

CANNOT biological illiteracy be costly? At the National Audubon Society's Camp of California at Sugar-bowl, during its first year, there was related this tale: a yesteryear Virginia professor had been increasing his insufficient income by Teacher's Institute lectures. One of these, off the railroad line, required that he rent a horse-and-buggy. The harness snapped. The professor, helpless, appealed to a passing illiterate negro boy for help. "Yes," the boy said, he could mend it quickly if the professor would give him a ride. Enroute the professor said to the boy: "How-come you knew how to mend the harness and I didn't?" The lad answered: "Well, some folks is born without any brains."

The Sugarbowl raconteur told the above tale to illustrate the illiteracy of certain groups. That Virginia professor knew much about the Punic Wars. He could discourse learnedly about Hannibal's elephant strategy. He could not, however, make minor horse-and-buggy repairs. In that boy's eyes, the professor was illiterate.

This, then, is a tale of illiteracy—not horse-and-buggy illiteracy, nor old-fashioned, McGuffey's R.R.R. (Reading, 'Riting, and 'Rithmetic), but of biological illiteracy. It will attempt to emphasize one fact apparent after Sputnik jolted us out of our complacency: the consequent hysteria brought a demand for the accelerated study of chemistry and of physics. This, whereas some believe that our real shortage is in biology.

As to biological illiteracy, is it not a blight flourishing with excessive urbanization? Only too many city-raised folks are as biologically illiterate as was Mrs. Malaprop when she talked glibly of that Nile-bank allegory. It was not even an alligator. Egypt has only crocodiles.

At Sacramento Orphanage Farm 50 years ago, in my volunteer nature study work, we had a problem boy who made little trouble. He went on the nature walks. He planted his own little garden. He went to the summer camps where We-2\* had the kiddies as guests. He, however, just did not fit in. Then he ran away. No news for years. Finally a letter from a distant city: "Went to sea. Sampled every vice. Finally decided on suicide. Bought the gun.

\* Mr. Goethe always refers to his wife and to himself as "We-2." Mrs. Goethe died several years ago.—The Editor

Then remembered you loved boys, that killing myself wasn't a square deal to you. Reformed. Am now, under another name, honored in my profession. Married, 3 sons." He enclosed notice of his eldest son's graduation *cum laude*. He also had made his college's honor society. Does one ever know, when planting a seed, what harvest may result from nature study?

I have also had a neighborhood kiddies' nature study class. One winter they raised butterflies from cocoons. One laddie, yearning for when he would be old enough to be a member, brought me a turtle. He asked: "Into what kind of a butterfly will this turn?" We can stand biological illiteracy in those of tender age like that boy. Is it not, however, rather costly when some biological illiterate is chosen to high office? Only too often, decisions thus are made costing millions of taxpayers' money—even hundreds of lives.

Nature study repeatedly shows the way to better living. Many nature lovers, particularly boys, also are instinctively collectors. Some are rockhounds, some—yesteryear—collected birds' eggs. More than one then hung strings of them at the mantel of that holy of

## ABOUT C. M. GOETHE

We believe it safe to say that almost everyone working actively for conservation education throughout the world has had the good fortune to know Mr. Goethe of Sacramento, California, and to value the leadership he has been providing in this field for many decades. As a successful farmer, he knows and practices wise conservation measures in his own business; as a world traveler, he has exerted positive influence for better conservation methods in scores of foreign countries; as a steadfast friend, he has encouraged countless young people to embark upon their own careers in this area; as a stimulating member of many conservation organizations, he has invested unstinted time and energy in their constructive agendas. His own inspiration, throughout his mature years, stemmed from the devotion his wife also gave to this cause. Though her death several years ago brought to an end her active cooperation, it is still her spirit that one feels behind Mr. Goethe's actions, as he refers to his work as coming from "we-2."

holies—the parlor—reserved for weddings, funerals, and important visitors.

Note folksayings about nature. What oldtime Germans called "peasant wisdom" preserved human experiences as security. When the world was younger, men embalmed into folksayings quantities of nature wisdom. The sages emphasized this. Solomon advised "Go to the ant." (An Audubonite, studying the ants of his garden, or of a South American jungle, finds his respect for Solomon increased.) Even Jesus used such expressions as "Consider the lily," also "Do men gather grapes of thorns, figs of thistles?" Note also such folksayings as "There's a black sheep in every flock" . . . "It's hard to teach an old dog new tricks" . . . "Birds of a feather flock together." They even thus preserve eugenic truth: the Ozark hill-billy with his ready ax, comments, "Little Jim is the splittinest image of Big Jim."

Note how Mother Nature always was "first at the Patent Office." Corrugation is an example. Does not one, mailing a fragile present from Tallahassee to Seattle, wrap same in corrugated paste-board? Also, on my ranches: if an irrigation ditch must cross a road, one uses, not plain pipe, but specially-corrugated culvert. This, to stand the hammering of trucks carrying sugar beets for your candy, tomatoes whose juice blushes in your vitamin drink, alfalfa that is finally converted into your milk bottle contents. If you are on safari in Kenya or Tanganyika, with a meal of, perhaps, giraffe jerky, you may notice that the horns of the oryx (that seen from the side originated the unicorn legend), also are strongly corrugated. In Arizona's Saguaro National Monument, its giant cacti have a wonderfully strong water-storage mechanism in corrugation. Also, in Africa, from Somaliland across to Senegal to even the Canaries, the euphorbias show parallelism to our cacti, in such great swollen leafless corrugated stems.

When, at the century's turn, Goethe Bank installed the "newfangled" adding machines (some still in use), Sacramento and San Francisco Chinatowns still used the abacus, that ancient adding machine. Through the Iron Curtain filter stories that Soviet department stores today still use the abacus. Also some make change in postage stamps and matches.

Is not a test of American "knowhow" our ability to achieve results? Are we hysterical about Soviet Sputnik when we should be thinking creatively about concentrating on reducing U.S.A.'s biological illiteracy? This, toward victories like Theobald Smith's research into the possibilities of insects as disease-carrier. It will be recalled this made possible the Panama Canal.

When they graduate, Kremlin students must work for three years at jobs assigned by the government. But these jobs pay up to \$6,000 a year (five times the national average) and also invest the holders with prestige and authority. The brightest go into research, and may eventually become presidents of institutes. Then they can earn up to \$40,000 a year, have houses in town and country, chauffeured limousines, special stores to shop in, paid vacations at exclusive resorts. As one student says proudly, "We have a great future." Russia is today producing nearly twice as many scientists and engineers as the United States. Bulganin recently boasted that Russia now has 5,500,000 specialists, and would double same by 1960. They will then far outnumber those of the United States, which already suffers a shortage.

The statesman-like vision of President John H. Baker was shown in his wise broadening of the National Audubon Society's activities to include more than the original bird study. In thus embracing ALL nature study, does it not incidentally become an antidote for our ever-increasing urbanization? At the first census in 1790, we were a nation of farmers. Our folksayings of those days tell how close we were to nature. "He's as low as a snake's belly." . . . "Busy as a bee." . . . "Smart as a fox." . . . "Works like a beaver." . . . "Scarce as snake's feathers." . . . "Playing 'possum." . . . "Pulled in his horns" (i.e. like a snail) . . . "Knee high to a grasshopper." . . .

More than half our today's population is urban. The trend to the city increases. One recalls the London-born lad sent at World War bombing to rural Somersetshire. He saw a cow being milked. Then he said: "Glad I live in London. We get our milk in nice clean bottles. No dirty cows for us."

When one persists in trying to organize a local Audubon Society, or becomes interested in Audubon Junior Club Work, is he not doing his bit as a citizen?

—THE END



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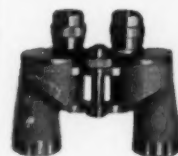
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"We first noticed robins dying in the spring of 1955 . . ." Photograph of robin by W. Bryant Tyrrell.

## Insecticides and Birds\*

**In five years, robins on a 185-acre tract were almost entirely eliminated by intensive DDT spraying.**

By George J. Wallace

ALL of us realize the critical need for more complete data on the effects of insecticides on birds, but we also realize the urgency of making whatever data we have immediately available. Hence, at the risk of some possibly premature conclusions I am glad to present some of the factual evidence I have. For we need these data *now*. A few years hence, when information is more complete, will be too late. We are just beginning to learn of things we needed to know ten years ago.

These initial data deal mainly with a carefully measured population decline of robins over a five-year period on the Michigan State University campus at East Lansing, coincident with an intensive spray-

ing program to control elm bark beetles (which transmit Dutch elm disease), and for mosquito control. East Lansing, including the Michigan State University campus, had aerial applications at the rate of a pound per acre of DDT for mosquitoes over the entire community in 1955, 1956, and 1958. The Dutch elm treatments started a year earlier and have been continued periodically ever since. During this time, quite by accident and not design, John Mehner, a graduate student, was studying robin populations in two unsprayed residential areas in Pittsburgh, Pennsylvania, and in two sprayed areas in East Lansing, including particularly the five-acre plot formerly comprising the Michigan State University Horticultural Gardens. His data on the population decline in East Lansing from 1954 through 1957, supplemented by my observations in 1958, tell a

dramatic and a disturbing story.

We first noticed robins dying on the campus in the spring of 1955, the year following the start of the local Dutch elm disease program. The die-off of robins continued each spring, on a scale sufficient to attract the unsolicited attention of the staff and students of Michigan State University, until by the summer of 1958, the elimination of robins from the main campus and some parts of East Lansing was virtually complete. At first I attributed the deaths to some disease affecting the nervous system, but it soon became evident that, in spite of the assurances of the insecticide people that their sprays were "harmless to birds," the robins were really dying of insecticidal poisoning; they invariably exhibited the well-known symptoms of loss of balance, followed by tremors, convulsions, and death. It was also soon apparent that earthworms might be the toxic agents. Among other things, campus earthworms inadvertently fed to crayfish in a research project brought death to all of the crayfish, and also brought on tremoring in a caged snake. The full details of just how this cycle operates in robins, however, was largely speculation until the publication of Dr. Barker's thorough analyses of leaves, leaf litter, soil, earthworms, and robins in Illinois,\*\* which clarified the confused situation.

Briefly, for those not familiar with this cycle, Dr. Barker's studies show that earthworms accumulate and concentrate DDT in their bodies by feeding on leaf litter from sprayed trees. Earthworms analyzed had deposits of DDT throughout the digestive tract, especially in the crop and gizzard, but also in all parts of the body wall, the dorsal blood vessel, and even in the ventral nerve. When robins eat the earthworms, chiefly in the spring following the year of spraying—since sprayed foliage is not available to the earthworms until fall and the infected earthworms not abundantly available to robins until the following spring—they in turn accumulate deposits in their bodies. One robin completely analyzed had 14 organs and tissues infected, with the greatest concentration lodged in the testes and intestines. Eventually the

\* A talk presented by Dr. Wallace before the 54th Annual Convention of the National Audubon Society, November 10, 1958. Dr. Wallace is Professor of Zoology, Michigan State University, East Lansing.—The Editor

\*\* See the *Journal of Wildlife Management*, July 1958 issue, Vol. 22, No. 3, pp. 209-274.—The Editor.



DDT reaches the brain cells (35 of 40 robin brains analyzed had DDT), causing locomotor paralysis and convulsions, followed by death within a few hours. I have never known a robin to recover after trembling sets in, and Walter Nickell, at the Cranbrook Institute of Science, Bloomfield Hills, Michigan, where dying specimens were received from the Detroit area, had nearly 200 afflicted birds "die on his hands" without saving a single one.

Our figures on the population decline on the campus of Michigan State University during the five-year period of study are dramatic, conclusive, and alarming. In 1954 the Horticultural Gardens—not optimum, or most favorable, robin habitat—had five pairs (five nests) on approximately five acres. Some campus areas had higher densities, but even using the lower figure of one

pair per acre gives a total of 185 pairs, or 370 adults, on the 185-acre North Campus. On this same area in 1957 Dr. Mehner found only 15 adult robins in three surveys in late June. In 1958 my June to August records, including one fairly thorough survey each month, totaled only three adults and one fully-winged bird of the year. (Ten robins seen crossing a corner of the campus in their early morning dispersal from an off-campus night roost on August 7 were not considered campus birds.)

Figures on nesting failures are even more startling. In 1954, Mehner's five study-nests in the Horticultural Gardens were all successful in producing young. In 1957, the two remaining nests were unsuccessful, so an intensive search for nests was made over the entire North Campus. Of the six nests found, five

produced *no* young and the fate of the sixth was not determined. On June 21, and again on June 22 and on June 24, Dr. Mehner searched the entire North Campus for young robins but found only one—this on an area that in 1954, on the basis of known population of adults and their nesting success, would have had at least 370 young. Detailed studies were not carried out in 1958, but at no time during the spring or summer did I see a fledgling robin anywhere on the main campus, and so far have failed to find anyone else who has seen one there.

The distribution of robins in other parts of East Lansing is very spotty—few or none in some areas, but apparently fairly numerous in some parts of the city which had been sprayed only for mosquitoes and not to control the spread of Dutch elm disease.\* Understand-

**"Our figures on the decline of robins on the campus of Michigan State University are dramatic, conclusive, and alarming." Photograph of Horticultural Garden, courtesy of the State Journal, Lansing.**

\*The DDT spray is used on elms to kill bark beetles which carry the fungi of the Dutch elm disease and spread it among previously unaffected trees.—The Editor





"By the summer of 1958, the elimination of robins from the main campus and some parts of East Lansing was virtually complete." Photograph of robin gathering earthworms by William J. Jahoda.

ably, these "fringe" robins, including a dwindling late summer roost that has been in existence for many years, give me embarrassing moments—as long as a few robins can be found anywhere in the community I am considered an alarmist by people who are not aware of the facts. The robin, like the passenger pigeon, would have to be extinct for about ten years before some of these people would admit that it was gone.

Incomplete data, still being assembled, reveal a similar situation in other sprayed communities, particularly those with an intensive Dutch elm disease program, and little or no decline in unsprayed communities. Dr. Mehner's Pittsburgh study areas showed no decline in either nesting pairs or nesting suc-

cess over this same four-year period. But some of the heavily sprayed suburbs of Detroit, Milwaukee, and Chicago, according to incomplete but creditable reports I have, are virtually without any robins. Computed either per tree or per acre, the several million sprayed elms in this country (figure from U.S. Fish and Wildlife Service, Patuxent Research Refuge, Laurel, Maryland) indicate a loss of millions of robins.

Obviously this same cycle, or a similar cycle, must apply to all ground-feeding birds that eat earthworms, or perhaps other affected soil organisms, but only for the robin are the full details known. Associated with the dead robins, at East Lansing and in Detroit, however, have been smaller numbers of flickers, blue jays, thrashers, catbirds, starlings, house sparrows, grackles, and cowbirds, all primarily ground feeders that may or may not get their insecticidal potion from earthworms. Examples of all these species have been observed dying of typical insecticide-poisoning symptoms, and specimens analyzed in other projects have been found positive for the insecticide involved.

Tree-top feeders (leaf gleaners) are affected in an entirely different way, by insect shortages, or by eating of poisoned insects in lethal quantities, or in sublethal quantities causing sterility in the birds in subsequent years. I have no data from dead or dying leaf-gleaning birds at East Lansing, but all of the insectivorous species formerly asso-

*Continued on page 35*

"Earthworms had DDT throughout the digestive tract . . . when robins eat the earthworms they accumulate DDT in their bodies." Photograph of earthworm by Dur Morton.



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# STATEMENT OF POLICY

## of the National Audubon Society

### on the Hunting of Mourning Doves

THIS matter was discussed at the meeting of the Board of Directors held November 11, and the President was instructed to send this statement of policy to all branches and affiliates, and to have it published in the January-February 1959 issue of *Audubon Magazine*.

The policy of the National Audubon Society with regard to hunting has long been, and is now, that the Society recognizes the recreational value of field sports, legally pursued; also the validity of the law of supply and demand and the consequent need of regulation of deliberate take in order that an adequate breeding stock may be preserved. This policy applies to all game species currently subject to an open season. This has been basic Society policy whenever it has volunteered or been requested to express its views, whether with regard to hunting of waterfowl, doves, pheasants, rabbits, or game of any kind.

By the terms of the Migratory Bird Treaty with Great Britain and Canada, and that with Mexico, doves are designated as game birds, and in the Migratory Bird Treaty Act of 1918, doves are game species and the Department of the Interior is charged with the responsibility of determining, in so far as the United States is concerned, when, within certain date limits, and under what conditions, mourning doves may be taken.

Any state may take more restrictive action, but it cannot legally provide more hunting opportunity than the federal government permits (we are talking now about birds defined as migratory in the Migratory Bird Treaty Act).

The National Society's policy is to recommend to the federal government regulations that reduce hunting opportunity wherever and whenever dove populations are found to be declining. Were the Society to adopt a prohibitionist attitude with regard to hunting where dove populations are not declining, and may be increasing, its so doing would be utterly inconsistent with its policy and representations with regard to other game species. Were the Society to do that, it would, in our opinion, promptly lose influence to damaging degree with relation to hunting regulations affecting species of game birds that are in far more need of greater protection at this time.

Now, there is a northern tier of states in which there has been no open season on mourning doves for some time, if ever. It is in some of those states that there is currently heated argument, as there are those who would like to see hunting of mourning doves legally authorized therein. The policy of the National Audubon Society is that even if it be known that the population of mourning doves in such states is not declining, or, in fact, is increasing, nevertheless the Society would oppose the opening of a season if it is convinced that the great majority of the citizens of that state are opposed.

The National Society conceives its primary responsibility to involve recommendation to federal agencies in the national capital. It looks to its branches and affiliates to assume responsibility at the local level, whether in state, county, or town.

JOHN H. BAKER, *President*,  
November 26, 1958.



*Illustrations by  
Walter Ferguson*

## *Wilderness Animal—* **THE FISHER**

**In the wild country of north-  
ern Minnesota, a fisher came  
to the author's bird-feeding  
bench to eat suet.**

**By Helen Hoover**

**W**HEN you live in deep wilderness you become very conscious of the comings and goings of your animal neighbors and any change immediately brings up the question of its cause.

Our home lies in the extreme northern part of Minnesota on the south shore of a border lake, across which rises the ancient rocks and forested hills of Canada's Quetico Provincial Park. The area immediately surrounding our log cabin is dense with large conifers—white pine, black spruce, balsam fir, and Arborvitae, locally called cedar. Porcupines had always been plentiful around us. Though we had to be very careful to keep salty ax handles and such out of their way, these prickly, gnawing animals afforded us considerable amusement. They also did us the favor of cutting branches from the high conifers, so that a



small herd of white-tailed deer came every winter to browse near our cabin.

One year the deer came on schedule, but we noticed that they stood around, looking puzzled. My husband investigated and reported that there was hardly a branch on the ground. He went out to cut piles of cedar boughs for the deer and I gave thought to what had suddenly made the place unpopular with, or unhealthy for, porcupines.

I realized that I had not seen one for months. There had been no reports of animal disease from the Forest Service representative. No foolish bounty had been recently put on porky's head. His food supply was still more than ample and fine housing was available for him. It seemed likely that some animal foe had entered our region, and that porky had either discreetly withdrawn or had been eaten.

We had the answer the next morning. Around our bird feeding bench were the tracks of a stranger—the fisher, *Martes pennanti*. Fishers feed a great deal on porcupines although it gets its name, not because it fishes, but because it takes fish from traps. Its tracks were about three inches across, the front-foot mark being noticeably wider than it was long. Every print showed five, rounded toe marks, each preceded by the marks of short claws. The pads were irregular in shape, elongated on the inside of the foot, and the thumb-mark was set well back from the other toe prints.



Our visitor had done a remarkably neat job of eating the meat on the bird-feeding bench. To get the bacon rind, it had pulled out the nails holding it to the wood and had laid them on the side. The suet had been contained in a little cage of half-inch wire mesh, also nailed to the bench. The fisher had drawn the front nails, turned the cage back as though on hinges, and had removed the contents.

The fisher inhabits the Canadian forests and is reputedly found in the United States only in the extreme Northwest, in the forests of the northern Pacific Coast and Rocky Mountains, and in wooded portions of New York and New England, adjacent to the Canadian border. A woodsman who travels far into Canada told me that the fisher's tracks are common some 50 miles north of here along a line roughly from The Lake of The Woods to Lake Superior, and are sometimes seen on the Canadian shore of our lake. The fisher follows a regular hunting range, so it is easy to picture one crossing the lake, perhaps over the winter ice, and finding things to its liking. It has resting dens along its route at convenient locations and in one of these, often in a hollow tree, the female bears from one to four young in April after a gestation period of almost a year.

The fisher is a carnivore that feeds both on the ground and in the trees. It regularly eats porcupines and hunts hares, moles, and other rodents. I have often followed its tracks and those of a snowshoe hare to a disturbance in the snow, from which the fisher had gone on alone. It is fast enough to offer danger to its smaller cousins, the marten, the long-tailed weasel, and the ermine. Its agility in trees is so great that it can capture even the nimble red squirrel, and our squirrel population has diminished noticeably during the past year.

The fisher is a magnificently beautiful animal, about three feet long. More than a third of his overall length is a fluffy, tapering tail. His coat is brown, sometimes so dark as to look almost black, with long, upstanding, frosty hairs about the head and shoulders that give him a deceptively soft appearance. His legs are short, especially the front ones, and his powerful haunches foretell great leaping power. His face is the



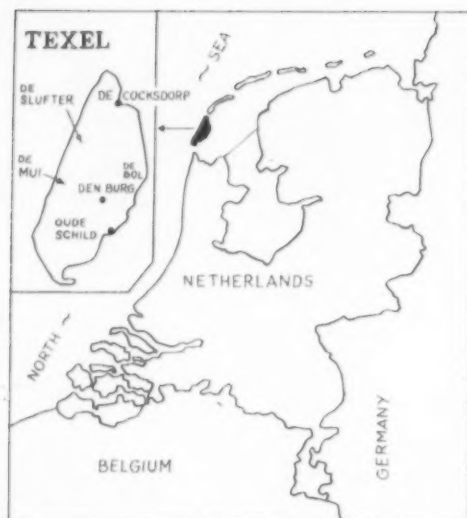
typical slender face of the weasel, with the same interested eyes, small ears deep in fur, and sensitive, pointed snout.

By night, he is as fearfully exquisite as a creature out of dreams. Moving about in the cold light of stars, or moon, or *Aurora Borealis*, he is a mysterious, fluid part of the half-dark. In the glare of a torch, his fur is sheenless, midnight black. The frosty hairs that give him daytime fluffiness are invisible and, smooth and sleek and catlike, he flows and poses like a shadow darker than all other shadows, his eyes green diamonds with pale yellow flames in their depths. After the sun goes down he moves in the unearthly beauty that belongs to the untamed land and its children.

He is sometimes called the Peka, sometimes Pennant's marten, and he bears some resemblance to the marten, although he is larger, has less upstanding ears, and lacks the marten's buff coloring of throat and breast. Erroneously, he is sometimes called the black fox. While walking the road on a fall afternoon I once saw what I thought was a small fox, running through the brush on the hillside below me. I know now that I saw a fisher, whose fluffy appearance deceived my brief glance, although size, color, and gait were not foxlike at all. To me he looks most like the mink, although he is larger and less sleek. He even has a small, mink-like whitish throat patch.

The day after we had discovered

*Continued on page 31*

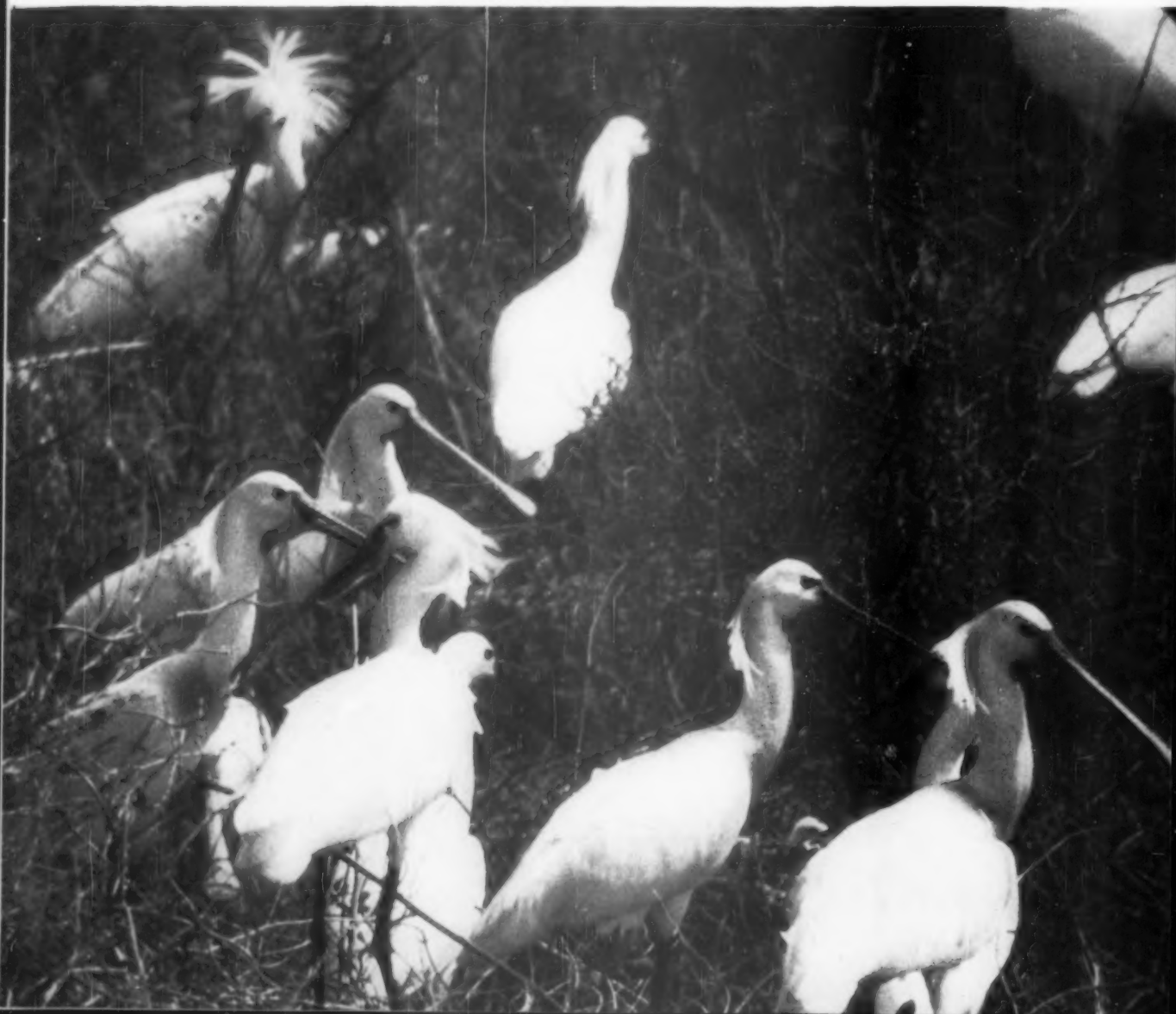


# Texel, Pearl of the North Sea Isles

An island in the North Sea attracts  
bird watchers from all of Europe.

*All illustrations by the author unless otherwise noted.*

Colony of spoonbills on the isle of Texel.



By M. J. Tekke\*

WHY do I choose the little isle of Texel as a subject of this article? I have several reasons for it; first, because it is my favorite place for birding in breeding time and especially during the autumn migration; second, because in our overcrowded little country of Holland, an amateur birdman such as I am, who must count his birding-days one for one, clings to a stronghold which, with the exception of our weekly Sunday-trip to the Beer Bird Refuge, can be done in a long weekend. Also, you can take your car with you on the ferryboat to Texel and visit the most interesting

\* Mr. Tekke is a Member of the Board of the Club of Ornithologists in the Netherlands.

places in a short time. And last but not least, because my advice to every foreign colleague and to the readers of *Audubon Magazine*, is: whenever you come to Holland don't miss Texel, and see with your own eyes those beautiful things which I shall try to picture for you.

In the navy harbor of Den Helder lies our ferryboat which brings us to Texel in 50 minutes. Escorted by herring gulls we enter the little harbor of Oude Schild. Before I go ashore my gaze is held by the picturesque composition of the old, red-roofed houses, the many white-headed black ducdalves, and the dominating windmill of this busy little village.

The first remarkable difference in the landscape, which strikes us when

we are driving to the center of the isle, is the cattle. On the mainland we saw cows everywhere but here we discover sheep only, strong animals of the special race bred on Texel and known far beyond our borders. Typical also is that the meadows are not separated by ditches on Texel with a higher level but earthen walls are built here of heavy sods. The walls, from half-a-yard to man-high, keep the sheep together and protect them against the cold seawinds. We now approach the little town of Den Burg with its old houses, beautiful church, and lamb-market. In the center of this village is a square with huge limetrees where you will find a hotel that I can recommend.

In the summertime we visit first

**Texel's testing place in field ornithology.**





Spoonbills in flight, photographed by Dr. J. Kist.

of all the Mecca of the Dutch ornithologists, the breeding place of the spoonbills, situated in the reedy shores of a blue fresh-water lake, called "de Mui," surrounded by dunes which are unique because of their rich growth of sea buckthorn and elder bushes. This colony of spoonbills is one of the three we possess in Holland. We are very proud of its accessibility because to reach its nearest breeding places in Europe, you must travel to Hungary or to the most southern point of Spain. Thanks to rigid protection, this colony consists of about 150 pairs; in 1924 there were only 10 pairs. Therefore it is clear that you need a permit, and that you can only watch them in company of the keepers. We climb to the top of a high dune to get a better view. From here we can observe the beau-

tiful snow-white birds standing on their nests or returning home from the feeding grounds on their mighty extended wings which are transparent in bright sunlight when they glide by overhead.

From the same observation post we can also watch a colony of blue herons nesting in the same way as the spoonbills in the marshy borders of the lake. As a rule we find their nests in tall treetops, but in this lonely valley the birds build their nests in the reeds. Our field glasses bring us nearer to the graceful spoonbills; some of them are resting on the nests; we can see their long black legs and the spatulate bill which is also black with yellow tip. Against a background of dark-green bushes these spotless birds always remind me of artistic Japanese drawings.



Teun Brouwer has spent a lifetime in bird protection.

By the end of February, the first spoonbills are returning from the south, but in March their number is growing. In August they leave us again, although some have wintered



here. A number of nestlings have been ringed, or banded, with good results. Recoveries in December in Andalusia, and on the coast of central Portugal, point out that wintering-quarters are reached by then. Ringed birds have been recovered not farther south than the Canary Isles and Rabat (N.W. Africa).

But there are other birds, too, that make this green valley of Texel so attractive. The slate-black coots with their white bills and forehead shields; all through the day numerous cuckoos call, and the brilliantly colored shelducks—in considerable numbers—find a safe shelter for their cream-colored eggs in old rabbit holes. Several curlews have their nests in the beach-grass on the hills, and if you are lucky, the snipe performs his display-flight with the goat-bleating sound produced by the widely-spread, outer tailfeathers.

There is a rich flower-vegetation in this area, thanks to its moist soil with plenty of violets, orchids, and cream-white pirolas, for which we will look in vain in the dry dunes along the coast of our mainland.

One of the most interesting birds, especially for English-speaking visitors, is the ruff. Perhaps you will remember my article in the September-October 1954 issue of *Audubon Magazine*, in which I wrote about



Spoonbills standing on the nest.

this bird and its remarkable courtship performances. Although there are several courting grounds of the ruff in Holland, Texel possesses one in the polder "Waal en Burg" which has been in use for more than 100

years. It is also popular because this courting area is situated across the main road where you can follow the flights of the birds from your car.

Another interesting part of Texel is called "De Bol." It is a grassy meadow and the principal breeding place of the avocet. Sometimes more than 100 pairs of this black and white "jewel" of our beaches, with its slender upturned bill, nest here. The whole area is, of course, protected and like all breeding grounds here, it is the property of our national society. In May 1954 I showed Roger Peterson this colony and he was very excited over it. Afterward, when he filmed the breeding avocets from a "hide" he had a windmill and a dike in the background. A flock of some hundreds of Brent geese completed the background and flew by overhead.

We are not yet finished with our visit to colonies of birds for in the dunes there is one colony of about 100 pairs of herring gulls. On the east side of Texel there are about 500 pairs of nesting black-headed gulls; also the terns of which the pure-white sandwich tern is the most attractive bird. In the colony there are 5,000 pairs of this tern. The common terns have 1,500 nests

*Continued on page 39*

The avocet is the black and white "jewel" of the beaches. Photograph by F. P. J. Kooymans.



# The Singing

# WOOD-RAIL

By Alexander F. Skutch

ON my first visit to Central America, I dwelt for half a year in a house set amidst beautiful shrubbery and trees, close by a broad lagoon that wound with many a turn down to the Caribbean Sea. The lagoon, an old channel of the Changuinola River in western Panama, was bordered by tall wild canes, huge-leaved herbs, and vine-draped trees; and behind this fringing vegetation stretched great plantations of cacao and bananas.

Multitudes of birds of many kinds swam in the still water, flew above it, or lurked in the dense bordering vegetation. Sometimes, especially in the late afternoons of April and May, my attention would be arrested by a series of ringing, bell-like notes, floating up to the house from the shores of the lagoon. Clear and loud, *tick tock, tock tick, tick tock tock tock tock tick . . .* sounded in the distance; and at times there would be an answering refrain that seemed to come from the mate of the first bird. The effectiveness of this remarkable performance, the sense of mystery that it evoked, was increased because it began, and ended, suddenly, and one waited in vain for its repetition.

On my last day in this fascinating region, I went for a farewell voyage on the lagoon, paddled in a dugout canoe by the black man who took care of the garden. Pointing out a large rail that foraged beneath a spreading tree on the shore, he assured me that this bird made the sounds which had so impressed me. Since he was a keen observer of nature, I had little doubt that he was right; but a decade passed before I succeeded in confirming the information he then supplied.

It was not until some years later, when I went to live in the valley of El General, on the Pacific slope of

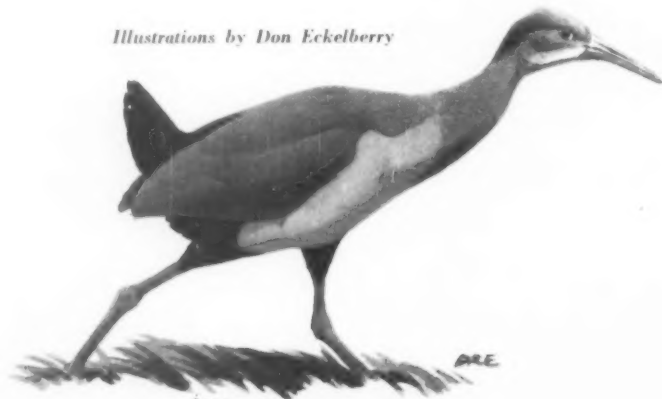
southern Costa Rica, that I became somewhat familiar with this elusive rail. It was a slow process that has required many years. One morning when I set out to collect plants, I met along the road a man over whose shoulder was slung a pair of the woven saddle-bags used by the Costa Rican country people. From one of the pouches projected the head of a bird, whose body was stuffed inside. Noticing my interest, the wayfarer stopped and offered to sell it to me, explaining that it was a *chirincoco* (pronounced with all the syllables almost equally stressed), which he had caught in a drop-trap. After some bargaining, he reduced his price to two colones or about 30 cents, and I bought the bird. It was a gray-necked wood-rail, *Aramidides cajana*, a long-legged, short-tailed bird about 12 inches in length. Its back was brownish-olive, deepening to black on the rump and tail. Its head and neck were largely gray, with a white patch on the throat. The breast, sides, and upper part of the abdomen were a lovely shade of orange-chestnut. But what chiefly impressed me was the beautiful bright red of my captive's eyes. After making a careful examination of its plumage, I untied its legs and released it in the next woodland through which we passed. I

was delighted with the alacrity it displayed in jumping from my hands and running into the undergrowth.

Not long after this, while watching from a blind the burrow of a chestnut-tailed automolus in the low bank of a stream that meandered through second-growth woodland, I heard a deep, hollow note emanating from the thicket on the farther shore. Presently a wood-rail came into view, walking with slow, measured steps over the level ground at the top of the bank. It pushed aside the fallen leaves with its short, green and yellow bill, searching for food, then stood erect and repeated the sounds that I had just heard. They reminded me of the plunking noise made by the entry of air into a very large, nearly empty bottle from which water is being poured, or the beating of some hollow, yielding, non-metallic body. The bird's light throat swelled out with each repetition of the peculiar note, but it kept its bill closed.

Then the lagging mate joined the foremost of the pair; and the two proceeded silently with long, deliberate strides of their bright red legs, until they passed from view around the bend of the stream. After they had vanished, I heard the long-continued song, of which the bird's lo-

Illustrations by Don Eckelberry



cal name, chir-in-co-co, is such a happy rendering. This was, so far, my most intimate encounter with a free wood-rail, and the best evidence I had yet obtained that it utters the far-crying notes that made such a lasting impression on me during my first visit to Central America.

When, about two years after this meeting, I bought a farm in another part of the broad valley of El General, I built my house on a high terrace close by a small stream. A little way below the stream enters the Rio Pena Blanca, a broad, clear torrent that rushes noisily down its boulder-strewn channel from the high peaks of Chirripó in the north. The low ground between the affluent and the main stream is covered with light second-growth woods with dense undergrowth; higher along the creek is even denser shrub growth surrounding a small marshy opening. Such impenetrable secondary vegetation, rather than the comparatively open undergrowth of the primary rain-forest, is the preferred home of the chirincoco. At least a single pair is usually in residence here. Over the years I have often heard them and seen them now and then. With two or three exceptions, all of my most revealing meetings with the retiring wood-rail have come while I sat in a blind, watching the nest of some other bird.

The wood-rails sing through much of the year, from January into October, but most in April, May, and June, the first three months of the long rainy season, when the majority of our birds of all kinds are singing and nesting most freely. They perform far more in wet, cloudy weather than on bright, dry days. They may sing at almost any hour of the day, and also after nightfall, not only when the moon is shining but even in the dense darkness of a clouded, starless night. As Frank M. Chapman long ago pointed out, their performance is, at least at times, a duet; and the two performers are often decidedly unequal in musical ability. This became quite clear to me one day in July while I sat in my blind in our coffee grove watching a blue-black grosbeak's nest. One rail sang at the edge of the thicket in front of me, another along the stream to my right. With the notes reaching me

from widely separated points, there could be no doubt that they emanated from two throats. The duetists, doubtless mated birds, kept perfect time; and the voices of both sounded somewhat strained or cracked.

The rails' song is far more pleasing and effective when the birds are so far off that only the clear, ringing notes reach the hearer, than when they are close at hand and the performance is marred by an undercurrent of cackling. I was impressed with this one April morning when the chirincocos sang alternately from the thicket beside our garden and from the streamside possibly a hun-



dred yards away. From the stream only the melodious notes reached me, and I was delighted by their long-continued flow. But soon the rails would come closer, and the cracked notes intruded most annoyingly. Then, after a while, the rails would return to the lower level, and their song recovered its enchanting beauty. This went on for nearly a quarter of an hour. A single song may last a minute or two with hardly a pause.

In addition to the booming sound, which I have rarely heard, and the loud, long-continued duet, the rails have a third utterance, an extremely harsh, stentorian cackle, suggestive of intense excitement or alarm. I have a number of times heard this arresting cackle issue from the thicket across the stream and hurried down only to have it cease before I could come in view of its source.

After sunrise on another day in

April, I cautiously approached in time to see a large opossum chasing a rail along the rocky shore of the creek, beneath the spreading river-wood trees. The bird ran or walked ahead, while the marsupial lumbered clumsily in pursuit. Twice I clearly saw that one member of the pair of rails was following the opossum while the opossum pursued the bird's mate. They turned off into the bushes on the farther side of the stream, then after a while emerged again on the shore. Thus the pursuit ran in circles, at the same time working slowly upstream, until all three of the participants vanished amid the dense vegetation. Once, while the chase continued, I heard the rails deliver a few notes of their *chir in co co* song, and they also cackled a little more.

The only explanation of these strange proceedings that occurred to me was that the rails had eggs or chicks hidden somewhere in the vicinity, and that one was luring the opossum from them, while the mate followed to watch, or to deflect the animal if it should turn back. In somewhat similar fashion, domestic chickens sometimes walk with upstretched necks toward a small animal which alarms or puzzles them.

Between this stream and the house is a shady pasture, in which for years stood a shed with a high-peaked roof thatched with leaves of the sugar cane. The horses took shelter in the lower part, which was open on all sides, and in the top, maize was stored. Squirrels frequented this rustic granary, cutting open the husks to reach the corn; and blue-black grosbeaks, gray-chested doves, and white-tipped doves came for the grains which the rodents exposed for them. Some of these loose grains fell through the palm slats on which the maize rested, and then the wood-rails would pick them from the dusty ground where the horses stood, although I never saw them enter the granary above, where richer stores were available. Sometimes two rails visited the shed together, but I could watch them only through a binocular from a distance. The moment they glimpsed me, they would run rapidly into the bushes which bordered the stream, a few yards away.

(To be concluded in the next issue)

# ADVENTURES FOR PHOTOGRAPHERS IN *Olympic National Park*

By Irving Petite

A VISITOR to the State of Washington from the Embassy of Viet-Nam in Washington, D.C., recently returned from the West Coast to the East somewhat disappointed.

"I had heard so much of the famous Olympic National Park, 'America's Last Wilderness,'" he said, his words made melancholy by a marked French accent.

"But where, I wonder, were the animals of this great park—the bear, deer, marmots, elk? I wanted to get pictures and now I must return with nothing to show. Just scenery."

The diplomat from Viet-Nam did not feel so disappointed when he learned that Lois and Herb ("Cris") Crisler, naturalist-photographers of the Disney release, *"The Olympic Elk,"* had lived within the boundaries of the 888,000-acre Olympic National Park for a solid decade, collecting the precious footage for that and other wildlife pictures. The Crislers prepared for a season's filming by packing canned food and supplies into the solid, upthrust jumble of the Olympic peaks all year, and sometimes the "season" in Olympic High Country lasted just a few short weeks. During one summer there were only six rainless

(and so, photographically perfect) days.

"Cris" Crisler had lived in the Olympics, sometimes as a Park Ranger, off and on since 1918. And, even so, it was during his last years there—in 1949 and 1950—that he was able to get footage he had always wanted—elk bulls in head-on, antler-battering combat for possession of a "harem" of elk cows.

"But how to get good pictures for anyone who visits?" asked the traveler from the East. "I don't want to make professional movies, but I would like to have a picture record." He thought, perhaps, of the ease of such accomplishment at fa-

Olympic elk photographed by V. B. Scheffer, courtesy of U. S. Fish and Wildlife Service.







View of the Olympic Mountains photographed from Magnolia Bluff, overlooking Puget Sound, courtesy Seattle Chamber of Commerce.

mous places like the San Diego Zoo, Lincoln Park in Chicago, and the Bronx Zoo in New York City.

"I drove 364 miles around the Olympic Loop Highway: I could see snow-capped mountains in a mass, and rain forests on the Hoh River and by Lake Quinault, and yet I never saw a single elk. I don't know whether to believe one guide book—which said there are 2,500 elk—or a book I read before leaving the East—which said there are 6,500. As far as I know, there aren't *any*."

Since nearly every healthy American traveler is now a naturalist of sorts, this problem is one which is echoed annually by many of the more than half-a-million persons who travel the Olympic Loop each year. We have revived, in a sense, the spirit of such men as Darwin, Audubon, Thoreau, and John Muir who noted and sketched every living thing they saw . . . save that now

we photograph and keep slide files instead of written record.

How, then, to get a photographic record of the animals of Olympic National Park? It is the nation's fifth largest park, set aside by an executive decree of President Theodore Roosevelt in 1909 for the purpose of preserving the rain forests and the Olympic or Roosevelt elk.

The first friendly instruction to a prospective recorder of the park's life is to "come inside." Few persons realize that the Olympic Loop Highway, U.S. 101, scarcely enters the park at all. It bisects a campground-infested area near Lake Crescent and runs through 12 miles of the lower end of the recently-added Ocean Strip—from Ruby Beach to near Queets—but otherwise is completely outside of the park. Any highway or park map will show you the 12 roads which you can turn off on to make short trips (10

to 19 miles) to campgrounds within or on the border of the park itself. For those with the time to spare, there are 500 miles of trails networking the solid mountainous upthrust that is the body of the park.

Now you are ready to photograph. Herb Crisler's basic rule is to have his camera always "at ready." Although he carries a hefty pack (sometimes 90 lbs. or more) in the mountains, he always has the loaded movie camera, on its tripod, slung over his shoulder.

"Because you never know when you'll see an animal," his wife, Lois says, "And it's animals-in-action he wants, not portraits."

"Strange, too," says Cris. "The one time I was without the camera during a whole summer's filming, I went down to a mountain lake for a drink. There was an elk, sporting and twirling in the lake, kicking and flicking the water with his fore-

Many Olympic National Park visitors have missed such pictures, and many more have not even seen them through the eye's delicate lenses, to store in memory's album. There are positive actions to take which will help you net such pictures:

1. "Come inside" the Olympic National Park. There are 54 species and subspecies of mammals at home here. E. A. Kitchin in his "Birds of the Olympics," has listed 261 species and subspecies of Olympic birds.

2. Carry your camera "at ready" and take it with you *everywhere*.

3. Try to become as much a part of the natural community as possible. In the first place, the Crislers call no attention whatsoever to their own presence. They wear dull, neutral tones of clothing and sometimes don't talk above a whisper. Sometimes they even go without cooked food in the High Country and subsist on raisins, canned meat, etc., for a day or two at a time in order not to startle a herd of elk with frying-bacon aromas.

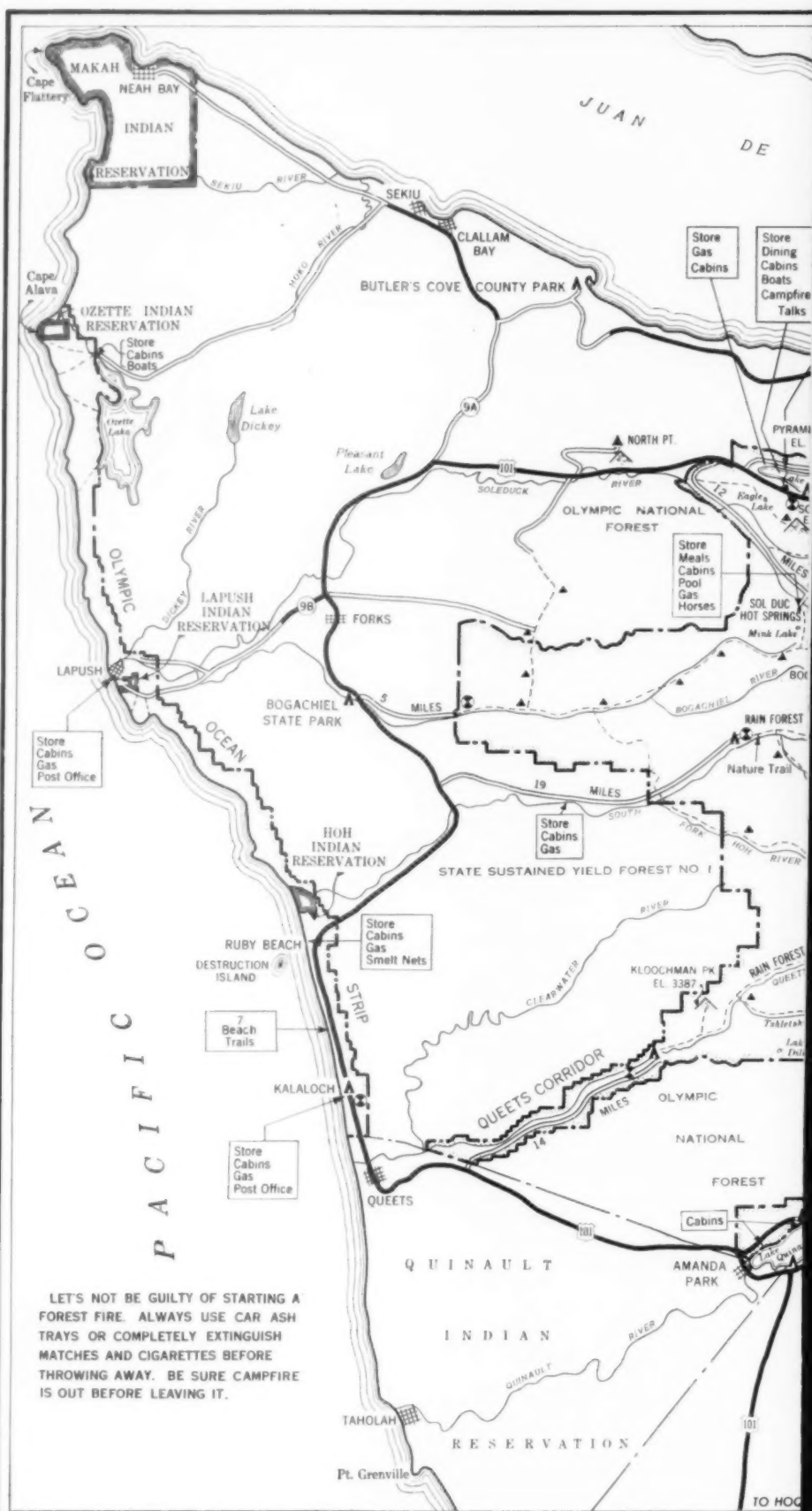
"We let the animals take the center of the stage," Lois says. "We just stand back 'in the wing,' behind the curtains. The curtains are often of mist, cloud, or fog, and exasperating if they spoil a beautiful photographic 'shot.'"

4. In general, watch for movement. Sometimes this takes some patient sitting-still on your own account. You may be willing to sit awhile after a half-day's hike in the Olympics, for while they are not huge mountains nor the atmosphere rarified, the going is often rugged.

When you come upon an individual animal or a herd of some species . . . "Let the animal see you, but be careful not to make any quick moves," Crisler says. "I pretend I'm interested in the rest of the countryside, and if the animal doesn't bolt, he becomes curious, but it takes time and patience. I waited three or four years just to get an elk fight."

5. The Crislers have some general instructions on where to look for certain of the outstanding Olympic Park animals. You may also find helpful the "*Olympic National Park Natural History Handbook*,"

Turn to page 26



Map, courtesy of the U.S. Department of the Interior.



by Gunnar O. Fagerlund, Park Naturalist (30¢ from Park Headquarters at Port Angeles or the U.S. Government Printing Office, Washington 25, D.C.).

(A) Marmots, which nearly disappeared from the Olympics for several years but now seem to be returning, are at two of the spots you can drive to. They are at Deer Park, a 17-mile drive southward and upward from Port Angeles. You drive up from sea level to 6,007 feet, traveling vertically a trip which would take several thousand miles, to northern Alaska, on the horizontal . . . for you pass through all the 'life zones'—Humid-Transition, Canadian, and Hudsonian to the Arctic-Alpine Zone.

Marmots also frequent the Marmot Bowl on Hurricane Hill. The 26-mile Hurricane road takes off the Loop Highway where it crosses the Elwha River. This is your best opportunity to drive into the heart of the Olympics.

The shy marmots are often nearly invisible against weathered wood or gray stones near their burrows,

but you may also find them silhouetted against the sky on their lookout rocks, or racing each other across the hillsides.

(B) Mule deer and Columbian black-tailed deer are nearly always in plain sight at both the places mentioned above. In the mornings and evenings they are out grazing. In the deeper forests, watch every opening for them; you will also find them in deserted homestead fields.

(C) The lordly elk also do their grazing early mornings and in the evenings. When you have driven up or "packed into" the High Country in summertime, look for them in those hours. They show up on the green mountainside or silhouetted against ridges or rocks.

At mid-day, on hot days, if there are snowfields in your vicinity, watch them, because it is where the elk are probably resting. The snowfield gives them relief from flies and heat. If you see what looks like exposed boulders in the snow, it might be elk. When the heat of the day breaks, along in the afternoon, they get up and leave the snow

patches to graze. If there are no snowfields around, the elk may be in low, moist meadows along the lakes or the small streams. On a cool day they are more apt to rest among the rocks, on a sunny side hill. Quite often, at a distance, you would take them for rocks, too.

This advice is for summer and fall. In winter and early spring, when elk migrate down to the lowlands for food—where their calves are born, either in the rain forest or some other timbered place—look for them morning and evening, also, but now along the homestead fields within the park . . . places like Krause Bottoms, Humes Ranch, and the old Anderson Ranch up the Elwha River.

(D) Do not expect the Olympic bears (black bears, there are no grizzlies) to be the garbage-collector bruins typical of some other national parks. They are friskier, healthier, and un-humanized. You might sight them, in the High Country, picking huckleberries, sliding down snowfields, or shooing grasshoppers into a small stream with

**Black bear eating apples, photographed by Herb Crisler kneeling in the foreground. Photograph from a Crisler Wildlife Motion Picture.**





their broad paws, so that they can skim the surface for the waterlogged "hoppers" and eat them by the pawful, like boys with shelled peanuts.

At salmon spawning time (September to November), they are common particularly along the Bogachiel, Quillayute and Hoh Rivers.

Around deserted homesteads, hewn from Olympic wilderness before it was considered as a park and sometimes still inhabited (but mostly not, for nature here is more persistent than any but frontier man), you will find old fruit trees. When the apples are ripe and even into late autumn when they may be frozen, you will find bears eating them.

(E) Around deserted homesteads, too, you will find, besides elk and deer grazing morning and evening in pastures, such animals as coyotes, striped skunks, little spotted skunks, and a half-a-dozen species of mice. You may also glimpse the shyer weasels and mink. Porcupines, common occupants of such places elsewhere, are almost never found on the Olympic Peninsula. The gray wolves, once native here, have all been poisoned, trapped, and shot.

(F) Birds, from lovely, colorful hummingbirds to bald, and golden, eagles, make the park one vast aviary. You will find many large birds along the salmon-spawning rivers. Along the Ocean Strip, you will find seabirds, from cormorants to half-a-dozen species of gulls.

Up in the wilderness streams, look for the American dipper, or water ouzel, a western bird that walks and feeds underwater. He is common in nearly every stream and quite unafraid, but you will never find him in citified streams. Watch for a gray, white-eyed bird darting through the foam and diving into a waterfall, behind which its nest is located.

The possibilities for pictures of Olympic Park animals are as limitless and intriguing as the mountains themselves, some parts of which have never been explored. You can record dippers, bears, marmots, and deer. You may even get a rare film (movie or stills) of bull elk in combat, for the fortunes of a photographer here are rare and unlimited.

Only "come into" the park and keep your camera "at ready."

—THE END

(Turn to Page 42 — For "Where to Stay While Visiting Olympic National Park")



Marmot photographed by Herb Crisler.

Black-tailed deer photographed by the author.



# THE OIL MENACE

**An English woman discovers a method of saving the lives of seabirds whose plumage is soaked with oil**

Bill, a convalescing razor-billed auk, eagerly accepts food from the author. Photograph by A. C. Littlejohns.



By Katharine Tottenham

**O**IL fuel, so widely used to power ships, machinery, and heating systems, has one major disadvantage: instead of clean ash it produces an insoluble tar-like waste that is too often allowed to pollute tidal rivers and the sea itself.

But not all the blame for oil pollution lies at the doors of industrial and shipping interests; the terrible decimation of ships in the submarine warfare of World War II has left a legacy of sunken tankers lying beneath the Atlantic, many with their keel tanks still intact. Immersion in water slows the process of rusting considerably, and it is estimated that 15 to 20 years may pass before sea pressure finally bursts the steel casings to release hundreds of gallons of imprisoned oil. This comes to the surface and spreads over an area of several miles, running like quicksilver to form tarry masses and voyaging along the nearest current, carrying impartially a cargo of weeds, wreckage, and seabirds.

This is merely a digest of the story that culminates in the arrival on our British shores of many pitifully disabled wildfowl, and occasionally, of the wholesale massacre of birds like the one that occurred in the Baltic several years ago, when German observers reported that rafts of oil lying out at sea contained more than 30,000 birds.

In global terms, the endeavor to end oil pollution is in the hands of the International Committee for Bird Preservation and the related International Convention. For us there remains the job of saving a few individual birds and returning them, clean and fit, to their natural lives.

So little is known about the care of seabirds that each one treated provides an opportunity for research and discovery, not only into ways and means of cleaning and reviving them but also their inherent habits and intelligence, and capacity for adapting themselves to a domestic life that is foreign to them. While some birds are so lightly affected by the oil that they can be released almost at once, probably 75 out of every hundred thrown ashore are already dead or on the point of death, and it is the remainder with



**The oil menace.** Seven murre, their plumage soaked with floating oil, await either rescue or death from starvation. Photograph by Ken Young.

some hope of eventual recovery that provides the interest and the challenge.

Congestion of the lungs, exposure, and starvation are the killers of oiled birds. In the course of the last few years I have worked out a pattern of treatment that is often successful. First, cleaning the oiled feathers is forgotten for 24 hours, and during this time my efforts are aimed entirely at warming and drying the victim and persuading it to take some food. A wad of cotton-wool is tucked under each wing and then the whole bird is swathed in cotton-wool, leaving only the bill and eyes uncovered. Then I place it in an open box in a room temperature of as near 70 degrees F. as possible. For this purpose I take over the kitchen from my protesting mother.

A bird with any hope of survival will soon live up and generate heat in its woolen cocoon, and this in

**Gilly, the murre that loved dogs, sits close to the author's Labrador retriever.** Photograph, courtesy of the *North Devon Journal-Herald*.



turn will cause the wet feathers to steam and the moisture is absorbed by the wool. Warmth is so essential because in nature, water never penetrates the feathers to the skin, and, when in this case, it does, severe physical shock results.

As soon as it feels really warm, a little food can be given the bird. For divers, such as razor-billed auks and murre, this should consist of thin, finger-length slices of raw fish. One slice will be enough for the first feeding, and it should contain a capsule of halibut-liver, or other concentrated fish oil hidden in the food. Very few birds will accept the initial feed voluntarily, and so it must be gently forced by prying open the bill with the forefinger and thumb of the left hand, and slipping in the morsel of fish with the right. This is not so complicated in practice as it appears in print.

Once fed the bird can be left quiet in its woolen bed for several hours and by then it should be dry. If it has the strength to stand it may like to be uncovered and allowed to flap its wings, but on no account must it preen the polluted feathers, because in so doing, fuel oil may be swallowed and that will load the dice still further against its chances of recovery. There are various arguments for and against the lethal properties of fuel oil in the digestive tract of birds, but in my view it is better to play safe. Any bird that is found wandering on the beach with oil on its breast feathers, I give a dose of creamy milk to neutralize poisonous matter that it may have swallowed.

The next day the job of cleaning off the oil is begun. Originally a bath of warm water and detergent suds was recommended, and some people suggested that lard should be used to melt the tar before washing. I have tried several methods and find that the simplest and most effective removing agent is fuller's-earth or prepared chalk, used as a kind of dry shampoo which can be rinsed out of the feathers after about 12 hours. It needs to be rubbed in thoroughly, though gently, with particular attention to clotted quills in the flight and tail feathers. Rinsing should be done in lukewarm water and the bird must be redried in wool to avoid chills. Cleaning can be repeated at two-day intervals un-

til the feathers are clear of oil; though some stains may remain, these are harmless and will wear off in time.

A murre will accept these attentions philosophically, but with a razor-billed auk, it is wiser to wear light gloves as these birds can carve a neat slice out of one's finger with no trouble.

But for a really tough customer the gannet takes the prize. Mercifully I have only had experience in handling one of these birds and it died of pneumonia in spite of every effort on my part; and on consideration I am inclined to believe that the kindest thing is to shoot a crippled gannet at once. My bird was a full-grown adult with a 6-foot wingspread, and a bill like an ice axe. Birds, nervously on the defensive, can usually be coaxed with a soft voice and slow, gentle handling, but the gannet is an all-out attacker able to sever a finger with one chop of its bill. I will admit to a shaking hand after trying to spoon cod liver oil down this one's throat. However, the brave heart faced with a lightly-oiled gannet will find that a swift grasp can get hold of the bird's neck just behind the head and render it temporarily harmless, so that an assistant can pull a thick stocking over its bill and head, tying it firmly but not too tightly round the neck. Once in the dark the bird will relax and allow any treatment. The only advantage to a gannet is that when it gapes its bill in rage, a fish can be inserted and in this way it will soon learn to accept food. It prefers whole fish and can swallow up to six 8-ounce herrings at one meal; these must be offered head first. I found a handy implement for the purpose was a pair of old-fashioned brass coal tongs that had seen better days on a Victorian hearth.

Swans may be equally dangerous at first but they can become very docile and friendly, and, of course, wild ducks are intelligent and easy to manage, though inclined to nervousness. I had a female widgeon as a patient for several months and the only problem she presented was one of diet; she was disgusted by everything until in despair I tried bread and milk with a little grated cheese. This proved to be the one and only food for a respectable

duck. When she was fit, a home and a mate were found for her on a private lake. Gulls, too, are nice creatures but possessors of the maddening habit of accepting a cropful of food and then turning their backs and regurgitating the lot. This is a purely nervous reaction, used by the bird in the wild when it lightens its load before take-off if it is threatened by a predator.

Of the many bird visitors that have passed through my house en route for renewed health and freedom, or sadly to a small grave in my garden, three have proved especially lovable and interesting. The first was a shearwater that spent three months here, learning its way about the house and delighting to mountaineer on the chairs with the aid of its hooked bill and formidably clawed feet. Then Gilly, a murre that was a dog-lover, liked nothing better than a cozy evening by the fire, sharing the bed of one of my kindly and longsuffering Labradors. The attachment was so unusual that I can only suggest she mistook them for seals, as seals often share rocks with colonies of murre. And now there is Bill, a razor-billed auk of independent character who patters indoors to stare meaningfully at the nearest human until his fish is taken out of the icebox.

Each bird has its own charm, but all share one disability: when they are otherwise clean and strong, they develop "wet-feather," and neither the cause nor the cure of this disorder is yet known. In effect the bird loses buoyancy and waterproofing and is unable to float on water. I know that the cause bears no relation to the cleaning process because injured seabirds suffer equally with oiled ones, and until recently I believed it was related to the unavoidable handling of crippled birds. Now the British Wildfowl Trust has introduced a theory that "wet-feather" may be due to stress, a condition that can only be cured by the bird itself as it becomes adapted to a new environment and mode of living; when by degrees it can learn to live an aquatic life once more and a return to full freedom is possible. But our present knowledge rests entirely on theory, and there is a wide field open for research into this problem.—THE END



## WILDERNESS ANIMAL — THE FISHER

*Continued from page 15*

the fisher's tracks at our feeding bench, I looked out of the window, straight into his curious stare. He was chewing off pieces of bacon rind, this time fastened tight to the bench with flat-headed roofing nails. He seemed little concerned with me, although I was less than ten feet away, but he made numerous trips to the corners of the cabin, looking cautiously around the notched log ends to assure himself that no danger was approaching unseen. When he had finished most of the bacon he bounded lightly across the snowy clearing, reared upright for a last survey of the open space, and vanished into the leafless brush. These unhurried leaps left paired tracks almost five feet apart, with the tracks of the hind feet overlapping those of the front. I have seen him cover 16 feet in a bound and believe he is capable of even longer jumps.

Because he has the shyness of the wild hunter and is very adept at concealment, the fisher is seldom observed except in the briefest of chance glimpses. My woodsman friend says that he has seen them

only a few times in his 40 years of trail-making. Putting out food for the fisher is likely to be fine for him but unsatisfactory for the observer, because the food will disappear in the night. However, the fisher is brave and does not need to fear many things, equipped as he is with speed, agility, and strong, sharp teeth, and thus may come out of concealment if the inducement is enticing enough and care is taken that he is not startled or alarmed in any way.

Quite accidentally, we found that one of the best ways to bring him out in the daytime is to attract the animals on which he feeds. This sounds cruel but in only one instance has he done more than pad along the edge of the woods and watch. We always have cracked corn around in strategic spots for the blue jays and gray jays, or "whiskey jacks," the grouse and crows, the squirrels and chipmunks. I was sitting on the step, admiring the beautiful stripings and rich red wash on the rump of an eastern chipmunk, that was standing in my left hand and gobbling corn out of my right, when I sensed movement in the path in front of me. Crouched not

ten feet away, a fisher glared at the little animal in my hands. His teeth were partly bared, and his eyes utterly savage as he crouched lower, as though to spring.

Very steadily I stood up, carrying the chipmunk along. Startled, the chipmunk almost jumped away, but caught sight of the fisher and collapsed in fear in my hands. When I moved forward a step the fisher rose on his haunches and hissed, but he gave ground and bounded to a small tree, leaping to an observation position about five feet up its trunk. He clung there much the way a black bear does; one foreleg wrapped higher than the other, while he peered around the bole to see whether he might safely come down or should seek shelter higher up. When I made no other move, he inched himself down backwards and trotted away without haste, giving me only an occasional backward glance. Now the quivering of the frightened chipmunk in my hands stopped. I looked down to see him calmly stuffing his cheek pouches with corn as though nothing had occurred.

After the "robbery" of our feeding bench, we covered the bacon in the evening and wound the birds' suet round and round with heavy cord and hung it from low branches, taking the balls down every night. For the fisher, we nailed pieces of suet to tree trunks near the house, or left meat on the step as we do for the ermines. The fisher came, all right, for no small animal could have loosened or removed the nails and we found his tracks in fresh snow, but it seemed that, since I do not possess a sixth sense that would tell me when he was there, the only way to observe him was to sit up and watch. This is not too easy in the woods, where our day's chores are long and hard, and the stillness of the night spreads drowsiness like a coverlet.

On an early spring night, when the snow was gone except in the places where the sun never reaches, I opened the kitchen door to feel the welcome softness of the south wind. From a nearby cedar branch, where I could dimly see a forgotten suet ball, I heard a tiny *tcheek-tcheek-tcheek*, a mere whisper of sound. I thought that some night-bird was there but, as I turned to pick up the lantern, there was a soft thump under the tree. In the beam

*Continued on page 35*

## ★ ★ NATURE IN THE NEWS ★ ★

*Reprinted from the New York Times, July 22, 1958*

### **Special Treatment Saves Doomed Birds**

NORTH DEVON, England (NANA) —When birds' feathers stick together they now can be gently unstuck, thanks to the efforts of a British woman naturalist.

Mrs. Katharine Tottenham thus solved a tough problem for the Royal Society for the Protection of Birds—and for bird lovers throughout the world. The society reported that 80,000 ducks and other water birds died last year because their feathers stuck together in oil-polluted water off the English coast.

"The greatest problem was pneumonia," Mrs. Tottenham said. "Under the old method of bathing them in soapsuds the birds were wet to the skin."

F. C. Lincoln, Assistant to the Director, Bureau of Sport Fisheries and Wildlife, also pointed out in a report on the problem that "soapsuds and detergents washed away the natural oils; if a bird

so treated attempted to swim, it would sink like a rock."

Mrs. Tottenham reported that after much trial and error she developed a "dry shampoo made of fuller's earth and prepared chalk" that absorbs the excess oil but "does not rob the feathers of their natural oil."

She outlined the treatment as follows: "The whole bird is swathed in cotton wool leaving only the head exposed and is kept in a room temperature of seventy-five degrees. Feeding is then begun, the food being either raw fish or a mixture suited to the species, but in all cases dipped in cod liver oil."

The next day, she said, she sprinkles the feathers with the "dry shampoo," which usually absorbs the oil in 24 hours. In seven to ten days, she added, "the patient is completely clean, eating hungrily and ready for release."

## A PICTURE STORY

*All photographs courtesy of Don L. Reynolds, St. Joseph Museum.*

# A Whooping Crane In Northwest Missouri

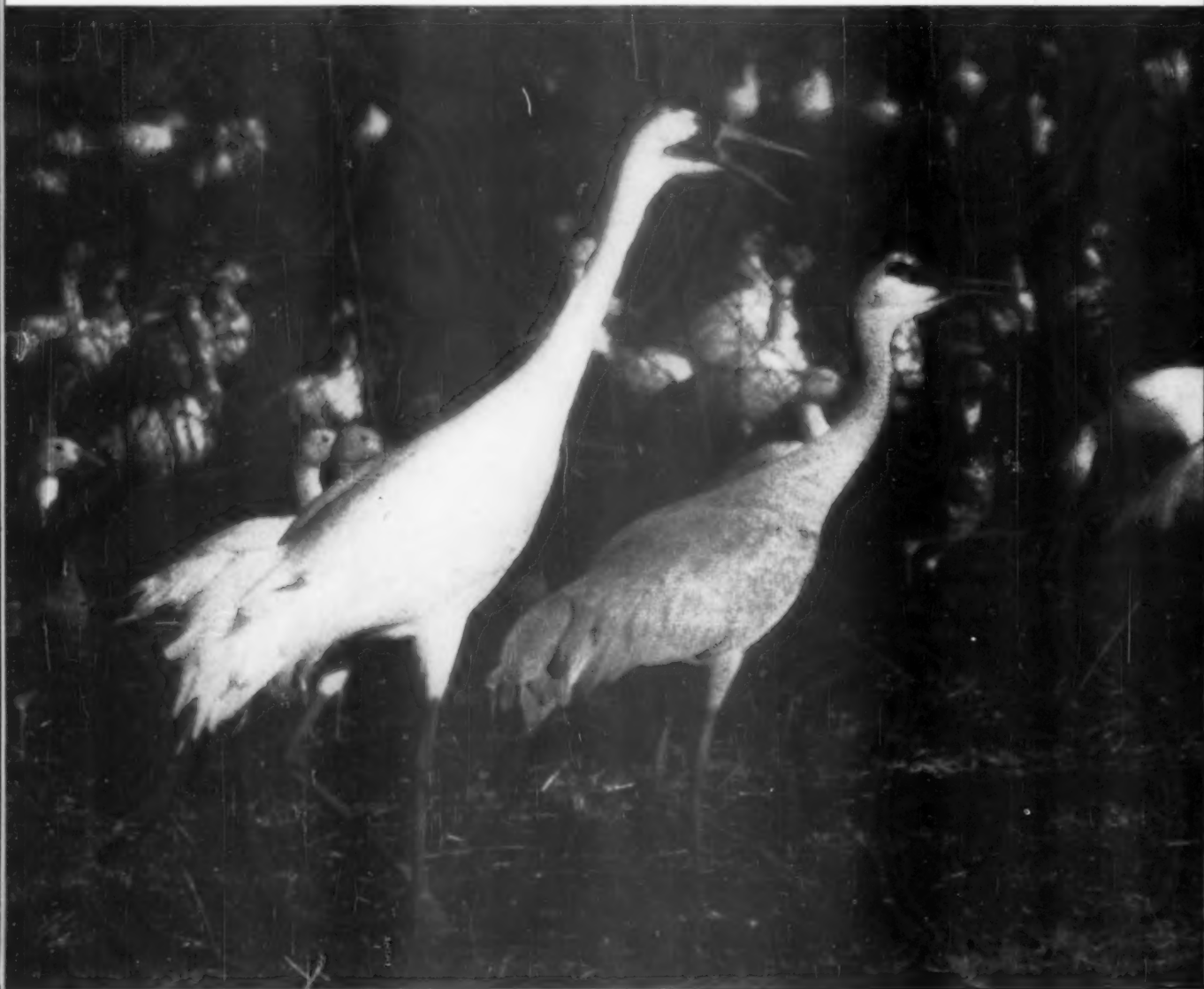


**T**HE first whooping crane to be sighted in Missouri in 45 years was seen near Bigelow, Missouri, in Holt County, on October 13, 1958. Dick Vaught sighted it from an airplane while he was on a duck and goose counting project for the Missouri Conservation Commission. It was near a small pond with two gray sandhill cranes. The next day, October 14, Mr. Kenneth Krumm, Manager of the nearby Squaw Creek Wildlife Refuge, and others saw the cranes three miles northeast of Bige-

low. Mr. Don L. Reynolds, photographer of the St. Joseph Museum, St. Joseph, Missouri, got photographs of the whooping crane and its two companions from about 300 feet away. He used a Kine-Exakta camera with a 750-millimeter (30-inch) telephoto lens.

The last record of a whooping crane seen in Missouri (March 27, 1913), was only about 25 miles from Bigelow, in adjacent Atchison County, in Missouri's remotest northwest corner.

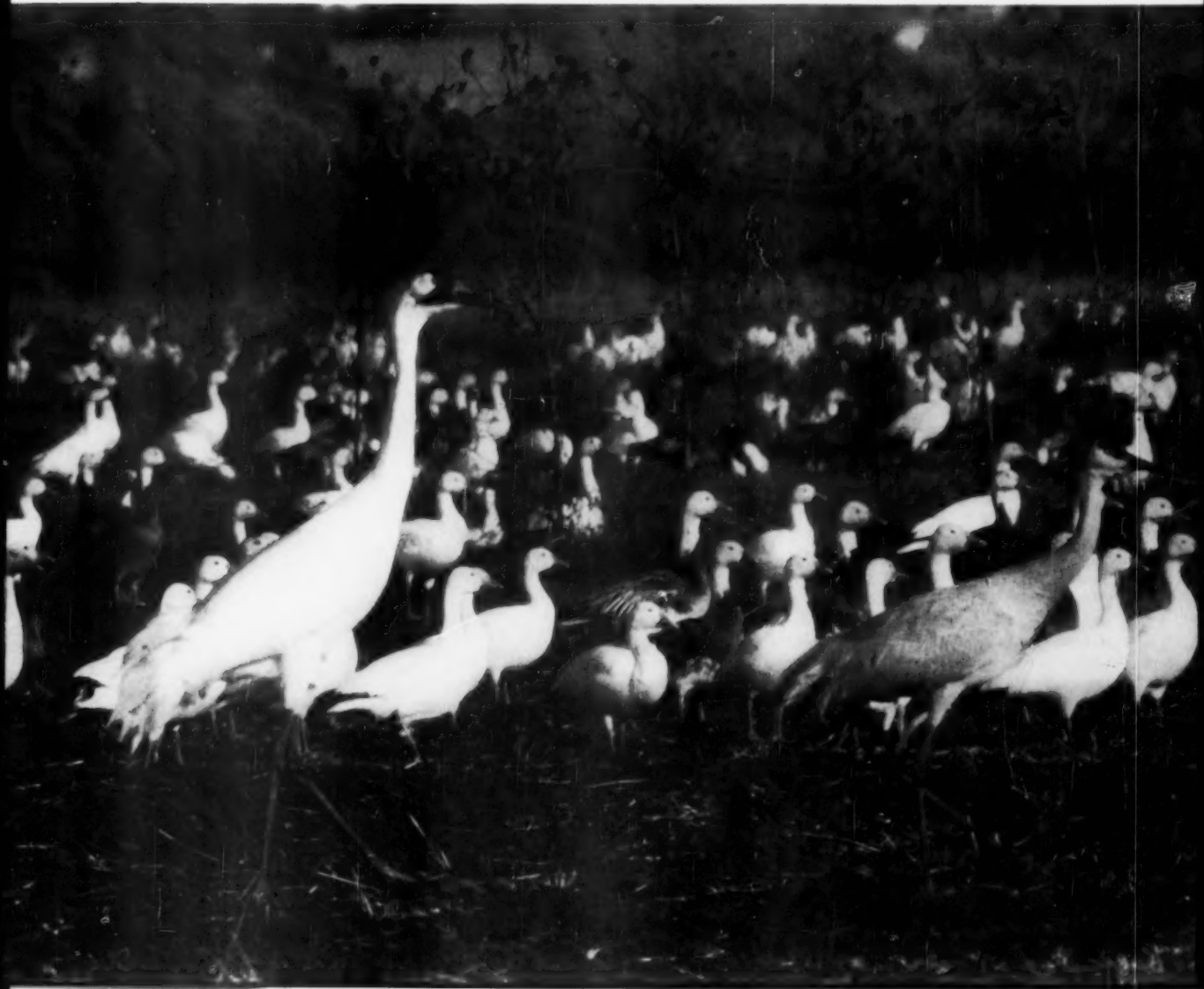
The whooping crane, at left, calls as it walks slightly behind a sandhill crane.





The whooping crane (indicated by an arrow) flies just below two sandhill cranes and above a mixed flock of blue geese and snow geese.

Still in company with a sandhill crane, the whooping crane parades before a flock of blue, and snow, geese.



### Comment

We urge our readers to cooperate with Mrs. Hoyt, and to send us your experiences which we shall be glad to pass on to her promptly. We would still like to have your notes for use in the "Letters" column of *Audubon Magazine*, where we can continue to build up interest and an exchange of information about pileated woodpeckers for the benefit of all of our readers.—The Editor

### Pileated Woodpeckers at Suet

In *Audubon Magazine* you mentioned an interest in whether pileated woodpeckers have been at suet feeders. For the past four years I have had a pair visit my feeders. In June and July 1958, they disappeared. I was very thrilled when in August they reappeared with a baby pileated. Since then all three have been regular visitors to my feeders.

KATHLEEN CORBETT  
Minneapolis, Minnesota

### Help for Parent Robin

I would like to comment on the touching story told in the March-April 1958 issue of *Audubon Magazine* (p. 86) by Mrs. Clary Clover on how she helped a robin that had lost his mate. Mrs. Clover says she had difficulty providing earthworms because the ground was frozen, and she took the little birds into her house at night to keep them warm.

I had a one-legged robin that could not gather earthworms but raised his young on the raisins and corn pudding I put out on my feeders. I prepared the pudding by cooking corn meal with suet and lard, raw egg, and crushed egg shells for calcium and iodized salt. The baby robin he raised was the most beautiful and smartest I ever saw. This suggestion may help other nice people who have the problem of feeding birds where earthworms are hard to find.

OLGA FLEISHER  
Philadelphia, Pennsylvania

### Descendant of John Bachman

Through my friend Mrs. F. H. Horlbeck of Charleston, South Carolina, I have received a copy of the September-October 1958 issue of *Audubon Magazine*, containing the articles about the rediscovery of the Bachman's warbler near Charleston.

I am a great-granddaughter of John Bachman for whom the Bachman's warbler was named. Another article in the September-October issue of great interest to me was Mr. Fries' "The Elephant Hunter." In his letter on page 194 he mentions the edition given to the Bachman's by Audubon. I remember seeing this in my great-grandfather's house when, as a small girl, I was

brought on a visit to Charleston.

My mother and her sisters and brothers lived with their grandfather, John Bachman, after their mother's death. They were brought up with all these interesting things around them.

In Mr. Fries' article on page 244 he speaks of the Rev. John Bachman and "the Rev. Samuel Gilmour, a Unitarian minister." This name should be Samuel Gilman, not Gilmour. I am sure he would like to know this.

MRS. E. DARRELL JERVEY  
Charleston, South Carolina

### Cowbirds and Juncos

In your July-August 1958 issue of *Audubon Magazine* (p. 146), I noticed a question about young cowbirds, asked by Mrs. Eileen A. Creech of Los Angeles, California. Perhaps my notes from Canada may be one answer.

This summer we arrived at our Laurentian cottage, where we keep a feeding tray, on May 13. A pair of juncos have nested on our property and brought up their young ones on our bread crumbs and porridge for a number of years, so we were not surprised to see them on the tray the very next day.

It was on June 27 that they began to carry away food, and on July 7 Mr. Junco brought his foster child, a cowbird, right on to the tray. On July 12, two cowbirds were being fed on the tray, and three days later, while we were watching the two being fed, an adult male cowbird appeared with another young cowbird. By July 16, the two cowbirds could feed themselves,

but the juncos gave help. A week later, four more young cowbirds came. That was the last time we saw the juncos' foster children.

It was on August 7, exactly a month after the first young cowbird was brought to the tray, that we saw the juncos feeding the first of their own offspring. We were delighted to find they had made another attempt at a family and this time had been successful.

MISS WINIFRED E. WILSON  
Montreal, Quebec, Canada

### Chipmunk Curiosity and a Wren House

I had just put down an old empty wren house on our terrace, when such a racket! Our pet chipmunk "Perrie" peeking into the box, got caught part-way in the entrance hole. I kept talking quietly to him and he stopped struggling. With all my courage I knocked at the top of the roof with a hammer. It came apart and away rushed the terrified chipmunk to safety.

HELEN WALDRON  
Tudor Bird Sanctuary  
Toronto, Canada

### Photograph of Young Alder Flycatchers

This is a picture taken about August 15, 1958, of some young alder flycatchers. They left the nest the following day. The nest was about four feet from the ground in a low apple tree.

RUSSELL B. STEWART  
Yellow Springs, Ohio

Young alder flycatchers (below), photographed by Russell B. Stewart.





ciated with the campus elms have disappeared. Walter Nickell, recipient of the several hundred specimens turned in to the Cranbrook Institute of Science from the Detroit sprayings, writes that nearly all species of warblers present in the area at that time were represented in the heavy kill of birds. Curiously too, some predatory birds—a red-tailed hawk and several screech owls—must have obtained their fatal doses indirectly from their bird prey.

We have even less data on birds that forage on the trunks and branches of trees (12 campus species), but some of these have been severely reduced in numbers. No black-capped chickadees or white-breasted nuthatches appeared at my home feeding station last winter for the first time in many years, and several other feeding station operators have reported the same experience. Of three nuthatches I have seen since, one was found dead, another found dying of typical DDT symptoms, a third, pathetically, was feeding on an elm. It seems likely that the dormant sprays applied to the elms, particularly in the fall, may be fatal to woodpeckers, titmice, chickadees, nuthatches, and creepers.

Altogether, according to my local records which cover a span of 16 years, 49 of the 77 species that were formerly summer residents in East Lansing have disappeared entirely or have definitely decreased in numbers. Some of these losses are due primarily to habitat changes; a few others are of straggler species whose absence in recent years may have no significance, but the majority are insectivorous birds that are definitely known to have suffered from insecticides. In a cursory, incomplete survey of published literature, and from some correspondence, I find records for more than 140 species of birds believed to have died from pesticides, and this is just a beginning; included are 27 cases of complete or nearly complete reproductive failure due to sterility or other causes.

This account leaves some doubt as to comparative effects of a program to control the spread of Dutch elm disease, versus the lighter but more widespread applications for mosquitoes. At East Lansing, programs of both types have been intermingled so long that it is hardly

possible to separate the effects. In general, however, it appears from this and other studies that one or two light applications for mosquitoes produce little or no *immediately noticeable* reductions in bird populations, but that a three or four year program produces precipitous declines in most insectivorous species. An intensive Dutch elm disease program is much more severe over limited areas but affects fewer species; locally it has resulted in complete or nearly complete elimination of all species closely associated with elms, including the birds that are leaf gleaners, bark foragers, and ground feeders. Our insectivorous birds are facing the greatest man-made threat they have ever experienced, and one of the inevitable results is their replacement by "nuisance" birds (starlings, house sparrows, pigeons, grackles, etc.) which are not dependent on insects but can survive on the waste products of man's activities.

Up to this point I have tried to present largely factual data. In con-

clusion I wish to express three somewhat more philosophical views resulting from my deliberations on these problems:

(1) The current widespread and ever expanding pesticide program poses the greatest threat that animal life in North America has ever faced—worse than deforestation, worse than market hunting and illegal shooting, worse than drainage, drought, or oil pollution, and possibly worse than all of these decimating factors combined.

(2) The present ill-conceived and ineptly executed fire-ant "eradication" program will go down in history as one of the worst biological blunders that man has ever made.

(3) If this and other pest-eradication programs are carried out as now projected, we shall have been witnesses, within a single decade, to a greater extermination of animal life than in all the previous years of man's history on earth, if not since glaciation profoundly altered the life of the whole northern hemisphere.

—THE END

#### WILDERNESS ANIMAL — THE FISHER — Continued from page 31

of light, the fisher's eyes burned green and his sinuous body was a black cutout against last summer's dry grass. I hastily switched off the light. Moonlight showed him plainly at the foot of the tree, still making his querulous little sound. I closed the door behind me and stood motionless. He retreated some 30 feet up our path and turned to watch. I waited a long time before he cautiously returned and came close to the steps, where he crouched, ready for any hostile movement. At last he inched nearer, sniffed at my feet, turned his back, and darted up the tree. His first attempts at the hanging suet ball set it swinging widely, and his louder squeaking showed his annoyance. Then he leaned down and nipped the string. He was on the ground almost as soon as the falling meat had arrived there. He did not interrupt his meal when I went inside, although he watched me until I was out of sight.

During the winter we had noticed that his visits were spaced 9 to 12 days apart, as though he were following an extensive range, but since my night encounter with him he has been around almost every day. Apparently we are not to be feared and a regular food supply is a fine

thing for him. This sign of friendliness led me to the not-too-bright idea of hand-feeding him.

I tried the procedure that has worked well with other animals, that of putting a bit of meat on the toe of my boot and sitting quietly. Instead of stalking and hesitating as I expected, he came straight to the boot and sunk his teeth into the rubber toe as though it were butter. Fortunately, because we buy our boots large enough to allow for extra heavy socks in bitter weather, my toes escaped. In the future I shall content myself with dropping food on the ground for him, which he obviously prefers anyway. I can observe him just as well and it is foolish to risk having a hand mangled by his formidable teeth.

In a book of someone's adventure in the North, I read sometime ago of a man's fierce defense of his life with an ax against a fisher. I do not doubt that a trapped or cornered fisher would defend itself ferociously, and that it could inflict a painful wound, perhaps a very serious one if its teeth should reach one's throat. But that it will attack a man without provocation, and that an ax is necessary for defense against any animal whose maximum body length

Continued on page 41

## An Evening in Sapsucker Woods

THE SONGS OF BIRDS AND OTHER DENIZENS OF A NORTHEASTERN WOODLAND

Produced by Dr. Peter P. Kellogg  
and Dr. Arthur A. Allen

INTRODUCED on this delightful recording are the songs and calls of 32 inhabitants of Sapsucker Woods, a wildlife sanctuary and research center in central New York for the Laboratory of Ornithology at Cornell University. On the first side of the record, Dr. Allen identifies the bird and amphibian voices often heard by watchers in Sapsucker Woods. Their experience is authentically preserved on the second side of the record.

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## Attracting Birds



## Birds Feeding at My Hands— Fifty Years Later

By A. L. Pickens

WHEN this 20th Century was only a lusty nestling, back in the 1900's, "the yellow snowbird" and the "little gray cardinal" were the best names we had on the old Richmond, Virginia, Church farm for the pine warbler and the tufted titmouse. The pine warbler came out of the pines in cold weather and fed about the houses; the crest and general shape of the tufted titmouse gave it its name of "little gray cardinal." I was feeding the birds regularly when one day came a real inspiration. I took a folded and crumpled rubber glove and left it on the window-sill to which the birds' feeding box had been gradually transferred. Carefully, I unfolded a finger or two of the glove at a time, until the birds became used to the shape of a hand. By the next day all the fingers of the glove were extended and neither bird showed any alarm. Next I put my hand into the glove, placed food in the palm and slipped it beneath the window sash. In a short while a bolder tufted titmouse darted down and with no great amount of fear lifted the food and started away. However, thrilled with such rapid success I had forgotten to switch off the light and I was silhouetted against the window. A slight motion of mine alarmed my prospective customer and it flew away. No response could now be elicited save a nervous hummingbird-like hovering in the air.

That day passed and the next. Neither bird showed up. It left me with a feeling of having been too presumptuous in making a desirable acquaintance. Came the third day and two titmice were back. They were put to a harder test with my bare hand. It was a little bit too much. Eager little eyes peered over the edge of the piazza roof. Woodpecker-like they clung to wall and lat-

tice, fluttered in mid-air hummingbird-like, clung woodpecker-like again. Now one peered down from the stove-flue to my left, fluttered on wing, lost courage, flew beneath me to the edge of the porch, and then one exasperating little rascal from somewhere brought out a piece of cracked nut it had carried from my food-box to store. It selected a perch from which it could watch me, and began eating rather calmly. It finished, disposed of the shell, and then like a bird-dog or a pointer it "froze." For 20 long minutes it watched me, then the food slipped and dropped from the ends of my fingers. The waiting little sphinx grabbed it, and was gone!

For three more days I saw neither beak nor feather of them. The cool insolence, as an anthropomorphist would think, of displaying stored food, for which I had been panhandled, while the panhandler waited for my patience to give out, was both amusing and annoying. Then one morning the titmice were back. Again I used the glove; then I pulled it off. The thrill of the whole experiment; birds alighting on the ledge and eating calmly out of my palm! The apparently older one, alighted, looked warily at my hand, and uttered a soft-toned questioning little whisper that sounded like, "See?" I pretended not to see, kept very still, and it led for some time.

Next day they were back. Finding the window sash slightly raised, they peered under it like curious children. Offered food, one pecked questioningly at my little finger. Finding that the finger did not grab, nor bite, nor jump, the little experimenter, like a confiding child that leans against you, pushed its fluffy, warm chest against the side of my hand, reached over and lifted food from my palm. Now came a wonderful opportunity for studying titmouse language! They were back next day, and

Turn to page 38

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one uttered a call to me, I flattered myself, as if seeking to communicate. Whether for me or not I responded with food, which it took from my hand. On the next day, both showed up, first one, then the other. A halt, then one came and perched on my hand while the other waited.

Next day the younger titmouse stepped confidently all about over my hand. The other preferred sitting at the box and was still cautiously "cheeing," while doing so. They were evidently won over now, though a rainy day three days later kept them away. I picked up a number of tufted titmouse call-notes as follows:

*Chee-chee-chee-chee*, a complaint when annoyed by the other crashing in at the box.

*Chip, and chip* again, a sort of note of satisfaction like a cat's purr.

*Sweet-sweet*, a request addressed to the glove, or when finishing and coming for more.

*Sweet-chee*, a questioning tone used on the way to the food supply.

*Swa-swa-swat*, with short *a*, greets an arriving mate.

*Sweet-child*, after a tense silence at the box and a flitting away, breaking a pause.

*Sweet-sweet*, softly uttered, a gentle caution or warning to a mate or companion.

*Peto-peto-peet*, called to a mate momentarily out of the immediate vicinity.

*Kitty-kitty-keeper*, the same, but perhaps a bit more anxious.

*Teedle-leedle-leet*, a tonal variation of the preceding.

*Teeder-william*, "If you don't show up I'm going to panic with grief!" When I answered that one with a whistled "Peto!" the bird came, fed a bit, and was off to the front of the house.

I had never won a pine warbler to hand-feeding but, with Bob and Jean, two mockingbirds feeding from my hands, a delightfully trustful little pine warbler followed suit. Tommy Tucker was our Carolina wren. When he sang for his supper from the sill of the open dining-room window it filled the surrounding rooms. When we had to surrender the apartment for a new owner we were glad to know there were bird-loving neighbors left behind.

In contrast to our first hand-feeding 50 years ago, our present Carolina chickadee feeds from the fingers, but the tufted titmouse is too cautious. But while the tufted titmouse can be won to something of a visit, the Carolina chickadee, so far, hovers like a hummingbird, sweeps the food up and is gone, or alights by the hand, lifts a morsel daintily, and gently is on wing again. Both are food-storers. While preparing this material I heard what I thought was a noise at the door. Again it sounded.

**12**

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Raising my glance, I happened to look first at the window where I usually tap the pane to call the customers. There sat a Carolina chickadee which had been tapping on the window with its beak. I immediately responded with food, finding some morsels of cheese just inside the window that had been visible to the midget.

City birds accept foods that rural birds ignore. Hickory nuts, peanuts, horseflies, and wasp-grubs used on the farm, we can supplement in the city with bread, peanut butter, suet, and oleomargarine. We also save seeds from both muskmelons and watermelons and dry them. Never throw cheese parings away; they make the best of bird lures. Acorns, especially of the willow oak, hold appeal for certain species. Sugar-water bottles used chiefly for hummingbirds may at times attract other species. Incidentally by using changeable colored paper petals some interesting ob-

servations in color choice are possible. And do not put all food in elevated boxes. Many species prefer to feed on the ground. At the old Richmond Church farm where I made my first bird-feeding experiments, Mrs. Lura P. Garrison got white-throated sparrows to a large window-box which provided earth beneath their feet. In a former apartment of ours, masses of pine-straw just outside the window caught on pine limbs gave them the same sense of earth-security and they came to our windows. In summer we save our melon rinds, and these placed on the back lawn draw birds of several species, and both gray and ground squirrels. These experiments begun as a boy in 1905—a memorable year with the founding of the National Association of Audubon Societies, had, by 1908, developed into hand-feeding. The year of 1958 we celebrated as a golden anniversary with the birds.

—THE END

#### TEXEL, PEARL OF THE NORTH SEA ISLES — Continued from page 19

here every year, and the closely related and aggressive arctic tern is represented by about 350 pairs.

As a rule we make an excursion to Texel twice a year in May and in September, and we never forget to drive with our car to "De Slufter." We not only go to see the birds there, but also to enjoy the fascinating landscape. When we arrive, we climb the high dune-top overlooking the region. At our feet a long plain hemmed in by dunes runs parallel to the North Sea coastline. Only at one place is there a gap in the row of dunes, which is caused by gales and spring tides. Through this opening, the water of the North Sea streams in and out and forms a lagoon. There have been several attempts to stop this gap but without success. I have seen "De Slufter" under the most different weather conditions, and always it was quite new to me. I am sure that you will be captured by the mixture of soft pastel colors caused by the colorful plantlife of the plain, and the sky reflected in the water. One autumn we were there during stormy weather when the threatening lead-gray clouds low in the valley, the big flocks of bright-colored smews and shelducks, and the elegant pintails, were all of an incredible splendor.

You also should visit the little village of "De Cocksdorp" in the most northern part of Texel. There is only one beautiful lane on the island and it is here. The trees, standing at each side of the road form a

bow, till the little church is reached. Though Holland is well-known for our gaining land from the sea, here we are losing it. Some ten years ago, the distance between the lighthouse and the water was 80 meters; it is now only 35.

Near the lighthouse, in September and October, we look for songbirds on migration which cross Texel from north to south, and rest and feed in the low bushes. On the other side of the harbor, a long dike runs to the south and this is our observation post for all kinds of waders, gulls, and ducks. The most favorable time to see them is when the flood tide begins which drives the birds on the shore to the place where we sit. We often bird in a small group of six to eight. All members of the company are tested in field ornithology and everybody must at once answer questions concerning recognizing, with the unaided eye, passing birds in flight. Three members with their field glasses check if the answers are correct. To the south along this dike, there is a very broad beach with beautiful plantlife. The warm red of the grasswort changes with the purple flowers of the sea starwort. Along the floodline we find long skeins of sea lettuce, *Ulva lactuca*, the leaves of which are green. Sometimes water and sand are dark violet. Everywhere grows the golden-yellow spartina grass, *Spartina maritima*. The abundance of colors makes these areas extremely attractive.

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Wherever you may go in Holland in the autumn, you will nowhere see more birds than at this particular place. Their numbers amount to tens-of-thousands. A long dark stripe on the beach is an enormous flock of black and white oystercatchers. Far away, above the horizon, a dark cloud comes along like a whirlwind. With our glasses we discover that it is an immense concentration of waders, changing their feeding grounds. From time to time we look carefully over the tops of the dike to the innerside; just before us about 500 curlews with down-curved bills stand sleeping in the wet meadow; some of them have hidden their bills in their feathers. The bartailed godwit, which in western Europe breeds in the northern part of Sweden, winters here by the thousands. This silent bird feeds while crowded together in shallow water which reaches to its belly.

The dunlin is perhaps the most numerous of all species. By ebb-tide many thousands of these little waders congregate on the extensive stretch of mud where they find their food in abundance. Their flights are impressive, especially when in clear

weather they turn in the air so that their wings are glimmering in the sunlight; if a flock passes overhead you hear the churring of thousands of agile wings. Besides these, other species here are redshanks, spotted redshanks, and greenshanks.

During the whole year, this place is guarded, and our friend Teun Brouwer is in charge of the area. We always have a talk with this rugged chap, who is nearly 80 years old. Every day he is at his post, and it is unbelievable what he still can see with his old eyes. He can tell you everything which interests you for he knows his domain thoroughly. The last time I saw him I asked him when he intended to retire. He said, "I don't even dream of it."

Teun was born on Texel and his whole life has been in the service of bird protection; he never had another job. His work is still of great value to this unique "bird-dorado"—the pride of all Dutch bird-lovers.

—THE END.

### "DROWN THE MOSQUITO — SAVE THE DUCK MARSH" PLAN

The "drown the mosquito—save the duck marsh" plan which proved successful in the three-year cooperative experiment in the Delaware tidewater was, according to the U.S. Fish and Wildlife Service, conducted on the Bombay Hook National Wildlife Refuge, about seven miles from Dover, Del. Similar cooperative tests were made in New Jersey, the service reported.

The findings in the Delaware and New Jersey studies not only offer hope for saving huge areas of duck marsh which might otherwise be drained but also may contribute importantly to the solution of the general estuarine situation which is causing concern to wildlife management and sport and commercial fisheries.

The fundamental technique used to check salt marsh mosquitoes was flooding of salt marshes where pest mosquitoes abounded. At times the water would be several feet deep. Net results were that the populations of pest mosquitoes decreased appreciably while the number of water fowl using the area increased manifold.

Those participating in the experimental project were the United States Fish and Wildlife Service, the Delaware Agricultural Experiment Station, the Delaware Board of Game and Fish commissioners, and the United States Department of Agriculture. The study was completed in the spring of 1958, and showed that all portions of the marsh did not produce mosquitoes in equal

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The automatic hanging seed and cake type feeders are generally the most popular. They can be hung from a tree or bush, or can be strung on a wire between two trees or buildings. This type of feeder can also be mounted on a pole or pipe. When filled with seed and one of each type HYDE FOOD CAKE, these feeders appeal to the greatest variety of birds. The features and price of both feeders are the same. Both are automatic-fill feeders with two HYDE CAKE holders and a capacity for 5 lbs. wild bird seed. Two sides of glass so you can see when to refill. Exclusive mortise and tenon type construction.

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Right: BIRDLAND (HF-57)  
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numbers. The most intense production  
of mosquitoes occurred at the upper  
edges subject to irregular flooding by  
high tides and heavy rains. These salt-  
marsh mosquitoes, by reason of their  
large numbers, long flight ranges, and  
both daytime and nighttime biting hab-  
its, constitute the principal pests in  
coastal areas.

Erection of earthen dikes on the  
marsh and continuous flooding of this  
zone with fresh water to a depth of  
several feet effectively eliminated breed-  
ing of almost all salt-marsh mosquitoes,  
which do not lay their eggs or develop  
under these conditions. Stabilizing the  
water level also encouraged predation  
by fish on the larvae of other pest mos-  
quitoes of lesser importance. The result  
was a large reduction in production of  
nuisance mosquitoes and a substantial  
increase in use by ducks, geese, and  
other kinds of wildlife.

The value of these findings assumes  
greater significance when it is realized  
that DDT and newer insect control  
chemicals can also kill fish, crabs, and  
other desirable aquatic animals. The  
development of mosquitoes resistant to  
a number of these insecticides has caused  
a return to open ditching as a control  
measure. In the past, such drainage  
has often been even more destructive  
to wildlife than the use of chemicals  
because of the drying of the marshes in  
which these animals live.

Diking and controlled flooding pro-  
vide a means in many areas of effectively  
integrating mosquito abatement, and of  
helping wildlife, and have now been  
adopted by some mosquito control agen-  
cies.

(From a news release of the U.S. Fish  
and Wildlife Service, U.S. Department  
of the Interior.)

### WILDERNESS ANIMAL — THE FISHER

Continued from page 35

is two feet, and whose top weight is  
about 18 pounds, seems doubtful.  
Unless the incident was colored for  
dramatic effect or the man had pan-  
icked, it seems more likely that he  
might have aroused a wolverine,  
whose aggressiveness and heavier  
weight would make him a more  
dangerous opponent.

I will accept the fisher as an ani-  
mal that bears within him some of  
the same unquenchable spirit of  
wildness as the timber wolf and the  
Canada lynx—an animal that adds  
joy to my days because of his beauty  
and grace; that sometimes stirs in  
me the eerie memory of ancient fears  
as he moves like a bodiless shadow  
in the moonlight, or pads ever so  
softly across the roof in deep night.

—THE END.

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ized pipe.
- Protector cone shields against predatory  
animals.

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Feeder No. 2 (same style) Capacity 1 1/2  
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wanted.) Send no money. We bill you later.

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## Announcement

The biennial Audubon Convention of California will be held at Asilomar, Pacific Grove, California from March 21 to March 24, 1959 inclusive. The convention is sponsored by the National Audubon Society in cooperation with its branches and affiliates. The Monterey Peninsula Audubon Society will be the host branch, of which Mr. Fred Beidleman is president. Speakers will be Carl W. Buchheister, Senior Vice-President of the National Audubon Society, Dr. A. Starker Leopold of the University of California, Roger Tory Peterson, and others. For programs and registration forms write to the National Audubon Society, Pacific Coast Office, 2426 Bancroft Way, Berkeley 4, California.—The Editor

### HELP TO PERPETUATE YOUR SOCIETY

May we suggest that you help to insure the continuance of the ever-widening influence of our program and philosophy by remembering the National Audubon Society in your will. Suggested bequest form: *I hereby give, devise and bequeath to the National Audubon Society, in the City of New York, in the State of New York, the sum of ..... dollars (or otherwise describe the gift), to be used for the general purposes of said Society.*

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**Service Department**  
**NATIONAL AUDUBON SOCIETY**  
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Continued from page 27

## WHERE TO STAY WHILE VISITING OLYMPIC NATIONAL PARK

Within the Olympic National Park proper there are 16 public campgrounds, most of which may be reached by automobile. Thirteen more (1 county, 3 state, 9 national forest) are located nearby, outside the national park boundaries.

There are more than 63 trail shelters, mostly inside the park.

At park headquarters, in Port Angeles, you will be given current information on these places, or any one of the 13 ranger stations on the Olympic Peninsula will answer your questions. Park rangers, naturalists, and all the men who work the road equipment will greet you pleasantly and give you information on how best to enjoy the park.

The public automobile campgrounds provide individual campsites with benches, tables, and fireplaces, with sanitary facilities and running water provided at convenient locations. Firewood is usually pre-cut for you, or may be picked up close at hand. It is wise to bring a hatchet and small shovel, as all unburnable refuse should be buried. At the state parks (three) an overnight camping fee of 75¢ is charged. One of these, Sequim Bay State Park, is among the loveliest in the West.

A map showing all of these campgrounds may be obtained by writing the Superintendent, Olympic National Park, Port Angeles, Washington, which will enable you to plan ahead.

Situated around Lake Crescent, within the park, are three resorts owned by National Park Concessions, Inc., Star Route 1, Port Angeles. They are Lake Crescent Lodge, Rosemary Inn, and LaPoel Resort. Rates start at \$4.50 per couple per day. It is well to write ahead for reservations.

In addition, there are 102 accredited resorts, hotels, and motels on the peninsula, many of which are in or near the park. A folder with descriptions and rates can be secured by writing to Olympic Peninsula and Hotel Association, Colman Ferry Terminal, Seattle 4, Washington.

Park Headquarters in Port Angeles has mimeographed leaflets telling where evening nature talks are scheduled. A continual source of 'naturalist information will be found in various columns of the *Port Angeles Evening News*.

Possibly the best places for headquartering to see Olympic Park animals and vegetation are:

(1) Up the Dosewallips River on the east side. At either of two campgrounds (16 and 18 miles up the river), you get right into evergreen forests that are like wonderland.

(2) In the vicinity of Port Angeles, on the north side. Short trips will take you to the top of the mountains, to Olympic Hot Springs, etc.

(3) Campgrounds or commercial resorts along the Ocean Strip, on the west side. From these you can go either way: seaward or back up to the Rain Forest on the Hoh River.

(4) The area of Amanda Park (south) where there are three public campgrounds on Lake Quinault, several resorts, and roads leading into other campgrounds and small rain forests on both the north and south forks of the Quinault River (campground and ranger station at the end of the road on each fork).

You can hardly expect to "see" the park without headquartering in at least two places: perhaps once at Port Angeles and once at Lake Quinault, the Ocean Strip or the Dosewallips.

The roads leading up toward or into Olympic National Park all come to deadends because of the mountainous character of the interior of the Olympics; but at every single dead end, or just short of it, there is at least one public campground. By living at these camps at least overnight, you have the best opportunity for seeing animals, for most of them are most active in evening and early morning.

All these roads, too, lead along rushing streams and through wooded territory. It is along various of these roads or just beyond them that you will find, for instance, the largest western red cedar (20' diameter); Douglas-fir (17' 8"); Sitka spruce (16' 3"), and western hemlock (9'), in the world. *New Hurricane Ridge Road*

A new road from Port Angeles to Hurricane Ridge, in the heart of the Olympic National Park primitive area, was begun in 1949 and completed by New Year's Day 1958. Surfacing of the new road, which runs by easy grades—not exceeding 7 per cent—from Port Angeles approximately 24 miles southwest to the 5,200-foot-elevation Hurricane Ridge Lodge, had been completed by mid-August 1958. The new road will be kept open during the winters from now on, except in extremely stormy conditions.

—THE AUTHOR



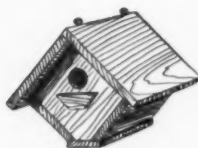
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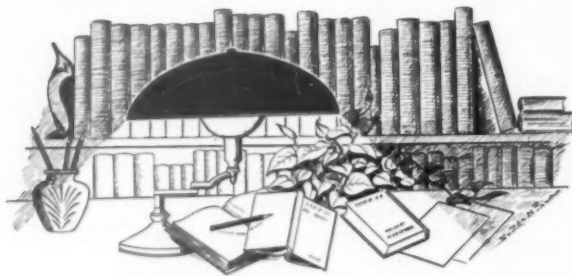
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## BOOK NOTES



By Amy Clampitt, Librarian, Audubon House

### A FIELD GUIDE TO REPTILES AND AMPHIBIANS EAST OF THE 100TH MERIDIAN

By Roger Conant, Houghton Mifflin Company, Boston, Mass., 1958. 7½ x 4½ in., 366 pp. Illustrated. Indexed. \$3.95.

It is no exaggeration to say that there has never been a book like this one. From even a casual leafing-through of the plates—24 of which, representing some 400 of the 1,100 species covered, are in full, handsome, startlingly life-like color—the advance, in accuracy and completeness, over all previous works on the subject, is evident. The really prodigious labor behind it, however, does not so readily meet the eye. "A small army of herpetologists," Mr. Conant tells us, "professional and amateur and some of them total strangers, scoured the plains and forests, descended into caves, risked pneumonia by wading in swamps on early spring nights, drove hundreds of miles, and in general displayed incredible enthusiasm in ferreting out rare specimens just to contribute to the cause." The illustrations, with one exception which readers of Roger Peterson's "Bird's-Eye View" column already know about, were made directly from living specimens, and the technique employed is as remarkable as everything else about the undertaking. The animals were posed by the author and photographed by his wife, Isabel Hunt Conant, who developed her own negatives, made prints to scale, and then—again from the living animal—retouched or colored each of these by hand. Picture a household in which upwards of 200 snakes, lizards, turtles, frogs, toads, and salamanders were being kept at one time, and you begin to gather some notion of that project. Nothing seems to have been forgotten—instructions on capture, transportation, and care, and on the treatment of snake-bite, are given, along with range maps, glossary, and a bibliography. And there is the advice which ought to be, but too often is not, borne

in mind by all users of field guides, on whatever subject: "In trying to make identifications remember that animals are not cut out by die-stamping machines or patterned by a trip through a printing press. Variation is a normal part of nature."

### LIVING BIRDS OF THE WORLD

By E. Thomas Gilliard, Doubleday and Company, Garden City, N. Y., 1958. 11¼ x 8 in., 400 pp. Illustrated. Indexed. \$12.50.

Big, gorgeous bird books like this one may no doubt be expected to appear every fall, with almost the regularity of swallows heading for South America, until every last species in that (ornithologically speaking) densely populated but sparsely photographed continent has had its picture taken. The main and noteworthy innovation here is the number of South American, African, and Asiatic birds represented, some of them for the first time as photographed in their native surroundings. While a majority of the illustrations are in color, there is the fine work of Loke Wan Tho—to single out one name among others better known—to serve as a reminder of the subtler range of possibilities in sober black and white. It is a pity that these are often less well reproduced, and in general treated with less respect, than their showier but often shallower counterparts in Kodachrome. Mr. Gilliard's text gives an extensive amount of information, but would have been improved by more careful editing.

### THE BIRDS

By Oskar and Katharina Heinroth, University of Michigan Press, Ann Arbor, 1958. 8¾ x 5 in., 181 pp. Illustrated. Indexed. \$5.00.

While popular bird books originating in our own country tend to treat birds by families and to deal chiefly in generalizations, those from abroad—and especially from the European continent

—are likely to concentrate on behavior and on differences rather than similarities. This small book by a distinguished German ornithologist—revised and brought up to date after his death by his wife—is a case in point. Its fascination, indeed, is in its extreme particularity. Having defined the class Aves, the first chapter is devoted to the proposition that “The Bird” does not exist save as an abstraction, and to warning the reader against all ornithological generalizations. Succeeding chapters, which deal chiefly with nesting habits but also with such matters as molts, locomotion, communication, and mental powers, abundantly and often surprisingly demonstrate the ways in which birds differ from each other. There is much interesting material based on Dr. Heinroth’s own observations: for example, he discovered that a corncrake which he had brought up from the egg was scared almost to death when it first heard the voice of its own kind; and he once watched a European blackbird begin nine different nests and then become so confused that it never finished any of them. When he does make a general remark it bears the stamp of a learned, lively, and original mind, as in this highly characteristic one from the chapter on color and pigment: “The colors are distributed over the single feathers just as if someone had taken a white bird and painted it the way it looks. This makes us think that whatever the reason for a bird’s being colored in a particular way, it is left to the single feathers, so to speak, to decide how to do it.” The trim and sprightly elegance of the format is almost, if not quite, sufficient to overcome one’s objection to the rather high price for so small a book.

#### LIFE: AN INTRODUCTION TO BIOLOGY

By George Gaylord Simpson, Colin S. Pittendrigh, and Lewis H. Tiffany, Harcourt, Brace and Company, New York, 1957. 9½ x 7 in., 845 pp. Illustrated. Indexed. \$10.00.

Three-and-a-half pounds of solid matter, as diversified, complex, and articulate as an introduction to the science of living organisms ought to be. As a college textbook it is somewhat revolutionary; as a reference it is hardly less than encyclopedic; and it is moreover a pleasure to read. One has throughout that sense of being taken into the authors’ confidence which is a result of their never losing sight of their audience, and which is so rare in textbooks, especially, alas, scientific ones. The brief essay entitled “What is Science?” in the second chapter, is reason enough for owning the book; and whether the topic under discussion is as general as the principle of Occam’s razor or as specific (or even subspecific) as the in-

tergradation among the populations of Oregon juncos or the history of the deer on the Kaibab Plateau of Arizona, its biological significance is made beautifully clear. The numerous photographs, drawings, and diagrams have been no less beautifully integrated with the text, and the volume as a whole is as handsome as it is useful.

#### BIRDS OF MARYLAND AND THE DISTRICT OF COLUMBIA

By Robert E. Stewart and Chandler S. Robbins, Government Printing Office, Washington, D. C., 1958. 9 x 5½ in., 401 pp. Illustrated. Indexed. \$1.75.

The detailed records from banding and population studies available to the authors—both of them wildlife biologists with the U. S. Government—make this something of an innovation in state bird books. The general plan is the same; but a list of maximum counts, with dates, places, and numbers, for each species regularly recorded in the area, may be said to open a new era in works of this nature, and will be welcomed by everybody, from specialists in population dynamics down to plain ordinary bird-watchers. There are no descriptions and no illustrations (aside from a frontispiece), though maps showing breeding ranges and banding returns are plentiful. Total number of species, excluding hypotheticals but including those now extinct or extirpated: 333.

#### JUNIOR BOOKS

##### GREENWOOD SUMMER (8-12)

By Marjory Bartlett Sanger, E.P. Dutton & Company, New York, 1958. 8¼ x 6 in., 160 pp. Illustrated. \$2.95.

Brian and Jenny Vogel, the brother and sister of “The Bird Watchers,” here continue their adventures at a Massachusetts nature camp. In writing of such a planned experience—especially when one believes in it as wholeheartedly as Mrs. Sanger obviously does—there is always the risk of turning into a sentimental advocate; but the author’s tact and good sense allow her to write with enthusiasm and still to make her young characters believable. The most touching of these is a blind boy, David, whose genuine goodness is portrayed with warmth but without a single marring trace of pity. And as a foil she gives us Toby, who lives for baseball, is bored stiff with mosses and ferns and regards a butterfly net as an affront to his dignity. When, before the season is half over, he is allowed to go home, a counselor remarks, “If everyone was interested in studying nature all summer, how could there be any World Series?” Having been a counselor herself, the author knows whereof she writes—whether it be the campers’ emotional ups and downs, nature trails, butterfly houses, or bogs.

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**WOODLAND WILDLIFE NOTEPAPER.** Authentic scenes look hand-drawn. Sample Packet: assorted, 16 designs, 6 colors, 3 styles; 24 sheets, envelopes—\$1.00 **HOOVER HANDCRAFT, Grand Marais, Minnesota.**

Classified advertising continued on page 48



# Scholarships

## TO AUDUBON CAMPS—

### *Gifts That Last A Lifetime*

AS AN INDIVIDUAL, you contribute greatly to conservation (human as well as wildlife), when you make it possible for teachers and youth leaders to better equip themselves to teach in all fields of nature. Through inspired training obtained at Audubon Camps these teachers and youth leaders become a continuing source of inspiration to all who come under their guidance.

AUDUBON SOCIETIES . . . Branches and Affiliates . . . This is your opportunity to give valuable service to your community. The Audubon philosophy — to learn, love, and

respect all nature — will come alive when spread abroad by Campers sent to Audubon Camps through your Society.

GARDEN CLUBS, WOMEN'S CLUBS, SCOUT EXECUTIVES, CAMPFIRE DIRECTORS, ALL YOUTH PROGRAM LEADERS!!!

Send your leaders in conservation education and nature activities to Audubon Camps. They will guide your Junior Groups . . . help them to be better citizens of your communities. These leaders will also be a source of valuable program material for your Adult Groups.

*Mrs. J. W. Whiteman, Jacksonville, Florida, HOUSEWIFE AND MOTHER. Photograph by Ed Knight, Elsner and Son, Jacksonville.*

"My two weeks at the Maine Audubon Camp were truly an amateur Naturalist's Paradise. The enthusiasm of the staff was contagious and before I left I felt that my interest in nature had reached an all time peak.



Rather than presenting nature study as a series of separate unrelated topics, nature was presented to us as a 'whole.' Each individual field trip helped the pieces of the nature-puzzle to fit together, completing the full picture. It is such a joy to share experiences with the children, which I teach, in the Camp Fire Girls and at the Jacksonville Children's Museum."

— Mrs. J. W. Whiteman

*William Masalski, Riverside, Connecticut, GENERAL SCIENCE TEACHER in Eastern Junior High School, Riverside.*

"The two weeks spent this summer at the Audubon Camp of Connecticut were of more practical value in strengthening my background in conservation and ecology than any college course taken in the classroom. The knowledge gained was by direct observation at the pond, in the field, in the forest, and many other places.



"The session certainly constituted one of my most pleasant and valuable learning experiences and I am indeed grateful to the organization which sponsored me and made my participation possible.

"Hats off to the National Audubon Society and the splendid staff at the Audubon Camp of Connecticut for providing the public with such a wonderful opportunity to better understand and appreciate the world around us!" — William Masalski

*Vi Berg, Milwaukee, Wisconsin. GIRL SCOUT PROFESSIONAL, Girl Scouts of Milwaukee County, Wisconsin. Photograph by B. Artin Haig, Milwaukee.*

"We who attended the Audubon Camp of Wisconsin in 1958 will long remember those rewarding two weeks. The camp, in its lovely setting, where wild life lived unafraid and undisturbed was a peaceful retreat for me, and I'm sure for all those attending the session. . . . Great praise is due you for the splendid job of training which is done at the camp. . . . Because of attendance at the camp, I will be able to share with a large number of our adult volunteer trainers the many additional new devices and the wealth of information I learned. They, in turn, will use this new material to promote conservation and love of nature in our girl scout program. . . . I shall always be grateful for the scholarship that enabled me to attend the Audubon Camp of Wisconsin. It is a place where fellowship and the com-



mon interest in the wonders in the world about us make up the daily program. You browse, explore, discover, and learn, and in so doing, learn that nature has much to contribute to the lives of all of us." — Vi Berg

*The Reverend Victor Hermann, Fair Oaks, California. PASTOR of Faith Lutheran Church, Fair Oaks. Photograph by San Juan Record.*

"A scholarship to Audubon Camp of California, thanks to the Sacramento Audubon Society, made a dream come true! . . . the lovely notes of the hermit thrush; a curious mother marmot and her young; learning why the aspen quakes; sighting a crimson snow plant . . . meeting kindred spirits from Hawaii to Connecticut! . . . These are some of the joyous memories that linger in the life of one who has attended Audubon Camp which still goes on in the classrooms of a hundred children at Faith Christian Day School . . . in the weather station the older boys have set up; the "Nature Corner" in each room; the wasps' nests, live toads and fallen leaves . . . Like the pebbles we tossed into Lake Van Norden last August, Audubon Camp's circle of influence is ever-widening, touching many in my congregation and community . . . I am grateful for the joys my Audubon Camp scholarship brought me, but I am happy that I can bring its message of conservation to so many others."

— The Reverend Victor Herrmann

**GIVE A GIFT THAT IS ETERNAL!! GIVE SCHOLARSHIPS TO AUDUBON CAMPS!!**

*(scholarships are tax deductible)*

**Write to: NATIONAL AUDUBON SOCIETY, 1130 Fifth Avenue, New York 28, N. Y.**

# Your CHILDREN



Mrs. John McEwan (at rear) points out a bird to some of her Audubon Junior Club members.

By Shirley Miller

RECENTLY one of our Audubon Junior Club members was asked what he wanted to be when he grew up. The boy thought this over for a moment, and then came up with a very logical reply. "I want to be alive," he said.

That story started a chain reaction in our minds. Most children ARE alive. They're alive to all the wonders around them—they're busy exploring, discovering, examining, evaluating. They're making collections of rocks and leaves. They're following animal tracks and making lists of birds. They're learning about all the life around them, and how this life relates to their own well-being. The \$64,000 question is, "Will they continue to be alive when they reach maturity?"

The answer to that query lies in the help we give them now. And this leads us to telling you about the help the children in Milwaukee County, Wisconsin are receiving—for the Audubon Junior Club Committee of the Milwaukee Audubon Society is meeting the challenge with an excellent plan.

Under the able direction of Mrs.

John McEwan, Chairman of that committee, it works like this:

First, Mrs. McEwan and her committee members call on the youth leaders in the area—the school superintendents, principals, and teachers; the Scout and Camp Fire Girl executives; the 4-H Club personnel, and those working with religious youth groups. They encourage them to use the materials provided by the Audubon Junior Clubs in their own programs, but they don't stop there. After these groups subscribe to this material, Mrs. McEwan's committee provides them with constant help locally.

Next they organize a series of FIELD TRIPS for these leaders, which give them lively and practical techniques for conducting such trips, themselves, for the children in their groups.

Third, the committee conducts an indoor LEADERS' TRAINING COURSE at the Milwaukee Library in which experts in the Milwaukee Audubon Society give the Audubon Junior Club leaders basic assistance in such subjects as Conservation, Birds, Insects, Plants, etc.

An AUDUBON JUNIOR CLUB NEWSLETTER is prepared by this

committee and sent to each Junior Club leader in the county four times a year. This Newsletter lists the time and place for the FIELD TRIPS and the LEADERS' TRAINING COURSE. It contains a section on SEASONAL PROJECTS AND ACTIVITIES FOR CHILDREN, a BOOK REVIEW section, a listing of the NATURAL SCIENCE RESOURCE BULLETINS that the committee has prepared especially for these leaders on their own Milwaukee area, and general information about the program of the Milwaukee Audubon Society. The opening paragraph of the Fall 1958 Newsletter illustrates so well the reason why this committee is making an all-out effort to help the youth leaders in their community, that we quote it, as follows:

"Have you wondered where our future conservationists will come from? Have you wondered who will carry on the fight to preserve our wetlands, our watersheds, and our wildlife? The children in your classes and in your youth groups will—if they somehow develop a genuine appreciation of nature. The alternative is to raise still another generation that treats our diminishing natural resources with indifference. Can we afford to? This Newsletter is our first. In it we hope to help you achieve this goal of developing alert, responsible citizens who are fully cognizant of their responsibilities to our land and to the wild things that live on it."

If you would like a free copy of the complete Newsletter, we would be glad to send it to you. Just write to us, at 1130 Fifth Avenue, New York 28, N. Y.

## CLASSIFIED ADVERTISING

Continued from page 46

**NATURAL PRESERVATION SOLUTIONS** for the preservation of insects, and marine life. Write for information to **ORIGINAL OSTAPP LABORATORIES**, P.O. Box 588, San Bernardino, California.

**AMERICAN INDIAN** arrowheads 8 for \$2. **AFRICAN PIGMY** arrowheads 14 for \$2. **DINOSAUR REPTILE TEETH**, 50 million years, clean museum-quality rarities, supplies limited, 3 for \$2 ppd. **CECIL HOUSSE**, Box 514, Westwood, New Jersey.

**LEARN WARBLERS QUICKLY** and easily with Identiguide for Eastern Warblers, 28¢ each; \$15 per 100. **BOX 75, PINE PLAINS, NEW YORK.**

**ECUADOR STAMPS** picturing TROPIC BIRDS in Brilliant Colors. Unused set 6 Complete, 15¢ to Approval Applicants. **EDWIN MORR**, 1204 Sandusky, Ashland, Ohio.

**THE WORLD IS YOURS** or Travels in Nature. Nature essay. Illustration. 50 cents. **ROBERT LA FONTAINE**, 5 Delaval Road, Worcester 6, Massachusetts.

**CARVINGS MADE TO ORDER** of Wood, Ivory or your rough Semiprecious Stones. **HERMANIA ANSLINGER**, So. 320 Ralph, Spokane 31, Washington.

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# *We invite inquiries* for participation in next season's **1959-60 Audubon SCREEN TOURS**

Each year 200 communities participate in the National Audubon Society's continent-wide Screen Tours. We invite your application.

These film-lecture programs further a knowledge and understanding of all forms of wildlife, and promote conservation education. Through them hundreds of thousands of people are reached in the United States, Canada, Bermuda and the Caribbean.

Featured in the films are birds, mammals, marine life, insects, and other forms of wildlife — presented in dramatic action and natural color.

Organizations with cultural or educational interests are the local sponsors. Costs are modest; and for the most part Audubon Screen Tours are self-sustaining. They have proven successful in small communities as well as large.

Audubon Screen Tours provide a cultural service for the community, and can bring increased membership and civic prestige to your organization.

Presented by top-ranking naturalists and wildlife photographers, appearing in person, Audubon Screen Tours bring the beauties of the out-of-doors indoors.

*Decision to participate in the next season's Audubon Screen Tours should take place prior to February 1.*

*Write* **NATIONAL AUDUBON SOCIETY, 1130 FIFTH AVENUE, NEW YORK 28, N. Y.**



# Have you ever Explored REAL Florida?

Beautiful sub-tropical birds are one of the thrills on the tours.



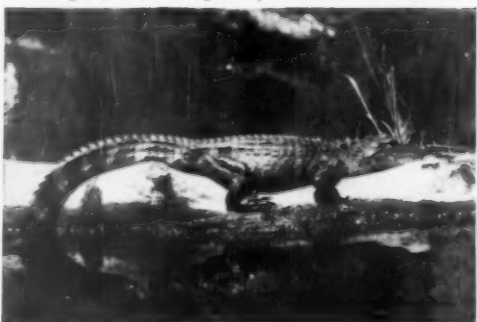
Cruising through a canal on the Everglades National Park Tour.



Tourists on the boardwalk at the Corkscrew Swamp Sanctuary.

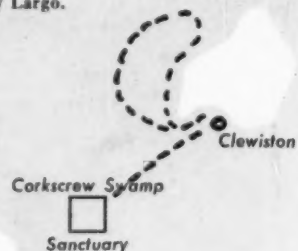


Alligators are frequently seen on the tours.



## Discover a Wildlife Wonderland on an **AUDUBON WILDLIFE TOUR**

**F**IVE trips are being conducted this winter and spring season for your pleasure, two of them being based at Clewiston Inn on the southern shore of Lake Okechobee, one journeys into the fabulously beautiful CORKSCREW SWAMP SANCTUARY in the northern portion of the Big Cypress country and the other into the FISHEATING CREEK country west of that Lake. Two trips base at Miami, one being a two-day trip through the EVERGLADES NATIONAL PARK to BEAR LAKE and a boat trip on FLORIDA BAY, and the other being a one-day trip by station wagon and boat through the PARK to FLORIDA BAY and return. For those desiring to participate in the boat trips only on FLORIDA BAY a fifth trip is planned, basing at Tavernier on Key Largo.



The tours start in December, 1958 and continue into April, 1959. The fee is \$15 per person for one-day trips and \$30 per person for two-day trips. Because of their popularity, early reservations are suggested.

*For free illustrated folders and reservations, write to*

**NATIONAL AUDUBON SOCIETY**

13 McAllister Arcade, Miami, Florida

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